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The Relation of Boards of Health to General Preparedness

Tuberculosis in France
Hermann M. Biggs, M.D.

Vital Statistics in Epidemiological Studies
Allen W. Freeman, M. D.

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American Journal of Public Health
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Vol. VII JULY, 1917 No. 7

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

THE regular Quarterly Meeting of the Association was held at the Brunswick Hotel, Boston, Thursday, April 26. Dr. Francis X. Mahoney, President, presiding.

The President announced that the October meeting would be held in Pittsfield.

Upon the recommendation of the Executive Committee the following members were elected: Dr. J. William Ledbury, Uxbridge, Mass.; Joseph N. Roy, Chairman, Board of Health, Webster, Mass.; Leon J. Kreft, Secretary, Board of Health, Webster, Mass.; Dr. Henry E. Chaput, 77 Cabot St., Holyoke, Mass.; Dr. C. L. M. Holmberg, 1111 Warren Ave., Brockton, Mass.; Dr. Adelbert M. Hubbell, 32 Summer St., Haverhill, Mass.

Names of the following members who had died during the previous year were read by Dr. Francis H. Slack, Secretary, and the names were ordered spread on the records: Dr. Thomas B. Shea, Boston; Dr. G. B. Underwood, Gardner; James C. Clark, Wareham.

The following discussion was then presented on—

THE RELATION OF STATE AND LOCAL BOARDS OF HEALTH TO GENERAL PREPAREDNESS.

DR. ALLAN J. MCLAUGHLIN. Mr. Chairman, Fellow Members of the Massachusetts Association of Boards of Health: I appreciate the very great honor of having this opportunity to address you. I have no paper to read; I have had no time to prepare a paper. As I told my good friend Doctor Mahoney, I was prepared to open the discussion even if I had to use a can opener; but I don't propose to make a speech, or go further than that. I come here to learn, and would like to hear the free expression of ideas that will probably follow when we open the ball.

In the matter of hygiene and sanitation the complications that are incident to a state of war, simply enhance the importance of the problem of hygiene and sanitation in time of peace. This problem of hygiene and sanitation splits itself into two very unequal parts: first, the hygiene and sanitation of the soldier and sailor, the fighting units, and second, the hygiene and sanitation of the civilian population, including all the exempt groups. You will naturally see, gentlemen, that the larger part of this problem, after all, is the hygiene and sanitation of the civilian population, and

if health officers and trained sanitarians are valuable and necessary in time of peace they are doubly valuable and necessary in time of war, with the added problems which come with a state of war. The hygiene and sanitation of the soldier and the sailor will be adequately cared for by the very excellent medical corps of the United States Army and the medical corps of the United States Navy, with their reserve forces, and they will have probably their hands full to take care of this job, there is no doubt about that. And the other, the larger part of the problem, is your problem, gentlemen, and my problem. It is the problem which we handle 365 days in the year in time of peace, and which we will have to keep on handling in time of war, with its added difficulties and complications. I feel certain that the local boards of health appreciate this fact. They do not feel because there is a state of war that their obligations or duties are lessened in any way; I think they all feel that they are increased, that they are to keep on doing their work.

Now, it is evident that what we need if we have to do this work is some uniformity of action and some centralization of direction. The local boards of health naturally want to do their work, should do their work; they don't want anybody to come in and do their work for them, but it should be done under the general direction of some central authority, and the first step in that direction is the direction of the local work under state authority. It is unthinkable that we would go ahead on any general policy of sanitary work with forty-eight different systems in forty-eight different states. Here again you must have centralization, and naturally the federal public health service will be the agency which will coördinate the efforts of the state health organizations, and through them the local health organizations of the entire country. On Monday there is a conference in Washington called by the surgeon-general of the public health service with the executive health officers of every state in the union, to discuss this matter of the relation between federal and state authorities in this national crisis.

In England it was a very simple matter. They have a small country. They are not hampered by state law. They are not hampered by our democratic institutions, for which I feel sorry for them, and they have a simpler way of doing things. These things have to be done in a more complicated, more roundabout way in the United States, but that does not mean that they will be done less efficiently. On the contrary, we have every evidence that we are going along every day (and when I say "we" I mean the whole country, from the humblest citizen to the national council of defence at Washington), are going along every day in the direction of preventing the blunders which have been committed by England and by France. I only hope that instead of a volunteer system, which permitted those blunders to become effective in England, we will have some kind of sensible universal service, selective draft, call it what you will, which will

enable us to avoid the blunders which England made.

Of course you all know what happened, without reciting that, in the first 100,000. They went out indiscriminately. They grabbed anybody who offered to carry a gun. They took the best brains in the country. They took the highest trained technicians, industrial chemists, doctors, lawyers, anybody else that could carry a gun, put them into the trenches, where they were slaughtered by thousands. After they recognized their blunder they tried to recall what remnants there were, those that had not been killed but some of whom had been wounded. They brought back four year and three year medical students who had been allowed to go out instead of concluding their course, put them back to finish their course and get their degree. But, gentlemen, they will not be able in this generation to replace the waste and loss of highly trained technical material that took place through that horrible blunder of allowing indiscriminate volunteering to go on. The volunteer system simply puts a penalty on patriotism, penalizes the man who has patriotism enough to enlist. Now, I think we are going to avoid that, and I think that in addition we are going to try to get square pegs into square holes. I think it would be a great crime if a trained sanitarian in this state, one of our good local board of health men, should go into the army. I say that with all due deference to my good friend, Colonel Chamberlain, and I think he will agree with me. They can get just as good material for their purposes without taking the trained sanitarian, who is probably over the age limit in most instances anyway, and who probably will not be called out in that way. But if we should have a highly trained sanitarian doing good service at home and taking care of the people in his own city that man should stay there and not be drafted into another service, the duties of which he would have to learn, which would be using a razor with which to chop down a tree.

There is one other thing I want to touch on, and that is the use of the public health nurses. When we started out to investigate just what the ideas of the public health nurses of the state were, most of them we found had signed up in some way with the Red Cross. Well, this is all very estimable and all very nice, and we are hearty in our support of the Red Cross in its functions, but we believe that the material for a Red Cross nurse is quite as good fresh from the surgical hospital, if not better, than that secured by taking from public health work in the field. On the other hand, as you all know as health officers, it is very difficult to replace the successful visiting public health nurse. Now, I think that also will be remedied. A clearer understanding has come, and I think the Red Cross are very willing to nullify whatever agreement they had with these ladies, so that they will continue to discharge their public health functions with local boards of health throughout the state.

In addition to the work which you have to do every day in the year you will, as I say, have added functions. Now, in addition to this there will be

other medical work which is contemplated by the committee on hygiene, medicine and sanitation, which will not be strictly public health work, which will not be strictly board of health work, and I refer to the medical and surgical care of the exempt groups in the civilian population, which may be put upon us. You may say that is a very remote possibility, it is not a probability, and that is true; but in any contemplation of preparedness you must contemplate the possibility rather than the probability. I have defined preparedness as a margin of safety over the maximum of possibility. It is the best definition of preparedness I can think of. We may never have to go to that length; at the same time we must consider it, and, gentlemen, we must consider the medical and surgical care of large groups of people. Now, it may be a very small group at first. It may be simply the dependents of the soldiers, who are left behind. But beyond that your minds can conceive at once of a lot of conditions that might occur, in which other large groups would be put upon you for medical or surgical care. You might have the blowing up of a large munitions plant in your district, in which you would have several hundred wounded suddenly thrust upon you. To take care of those is a little outside the regular work of the health officer, and I believe that the best way to handle that situation is through a local committee on hygiene, medicine and sanitation, to correlate with the state committee, of which I have the honor to be chairman, and that this committee in each city and town would organize their medical personnel in such a way that they would be prepared to take care of practically any emergency which might be put upon them. That is what the state committee on public safety has tried to do, to have organized in each city and town in the commonwealth a local committee, not only a committee of public safety but a subcommittee on hygiene, medicine and sanitation, which would organize the local medical personnel for any emergency that might arise. They would have to help not only the local board of health in its work, not only take care of the civilian population, but give every aid possible to the military in getting recruits, to aid them in so far as they might be permitted in examining recruits, or weeding out, at least, those that were obviously unfit for service, and numberless other duties that will suggest themselves to you.

I think that is as far as I care to go, gentlemen, to point out first that we must keep on our job, that the health officer must work as he has never worked before, that he must coöperate with his local committee on hygiene, medicine and sanitation, in order to see that medical and surgical care is furnished to every group that might need it, and to continue in this work and to look for direction first to the state and second to the federal government, so that we may have uniformity of action, and then, in addition to this, to render every possible aid to recruiting. There are very few things that we can do in a direct way. As Colonel Chamberlain will bear me out, the actual examination of the recruits in

the United States Army must be made by an officer of the United States Army, but perhaps there is a good deal of preliminary work in weeding out that the local people can do, and this I am sure we are all very anxious to do.

Col. W. P. Chamberlain. Mr. President and Members of the Association: In the mind of the enthusiastic and patriotic civilian at a time like this the thought at once occurs: "What can I do to help along in military or medical military preparedness?" The first idea is apt to be that he must ally himself directly with the military forces if he is to be of service to his country in the crisis of war. More mature consideration will show that only a limited part of the population can serve directly, and that the majority must remain at their customary duties in order that the wheels of industry may revolve and that the army may be provided with the sinews of war. The laborer who makes the necessary munitions serves his country quite as well as the soldier who carries a rifle. Without the former the latter would be powerless. Without the continued maintenance of healthful conditions in our communities the very foundation of our military strength would be menaced. On you upon whom rests the duty of maintaining civic sanitation will devolve even greater responsibilities in time of war than in time of peace. In addition, while remaining at your posts and maintaining healthful towns and cities, you can offer very real and direct help to any military force located in your vicinity. I will now touch upon some of the matters in which you can be of direct assistance.

The experience of the past has been that almost invariably disease has been a far more serious danger to armies than have the weapons of the enemy. Among the diseases which have especially scourged armies may be mentioned typhoid fever, cholera and dysentery. A fundamental step in the prevention of these diseases is a safe water supply. If you have troops camped at your city or near your city, they will probably use your water supply in their camp. Even if they are otherwise provided for in camp they will drink of your water when visiting the town. Therefore you should be sure that your water supply is constantly supervised and fully protected from contamination.

One of the most common methods for the spread of typhoid fever, dysentery and cholera in camps is through the agency of the house fly; the house fly, of course, as you know, carrying the germs of the disease direct from infected stools exposed to the access of the fly, and from the stools directly to the food. The military authorities can limit the breeding of flies in the camp site, but they cannot prevent the migration to the camp of flies bred in the surrounding regions over which they have no control. It is a fundamental duty of the health authorities of a town to see to it that sanitary conditions are maintained among those living adjacent to any camp site in their vicinity. In such regions cheap eating houses and low resorts are almost sure to spring up, and experience has taught that insanitary con-

ditions favorable to the breeding of house flies rapidly develop among such places that build up around the camps, unless the civil authorities are on the alert to coöperate with the military authorities.

The soldiers from camp will frequent the restaurants, the saloons, the soda fountains and the fruit stands of your town. You should see that such conditions are maintained in these establishments as will preclude the transmission of disease to the soldiers. One of the most important points will be a careful supervision of the milk supply. An examination of all cooks and waiters in restaurants and all those concerned in the handling of milk, with a view to detecting carriers of typhoid fever or para typhoid fever would be an excellent precaution.

If malaria prevails in your vicinity you should see to it that the region about the camp site is not furnishing mosquitoes to visit the camp and to infect its inmates.

Everything that you can do in the way of general sanitary improvement in your town or city will re-act favorably on the health of the adjacent military population. Care in the diagnosis and quarantine of measles is especially important. Among newly raised troops measles is always a serious menace. Epidemics invariably occur, and the mortality is always considerable. In our own service, even in time of peace, about five per cent. of the cases die. In a recent epidemic among soldiers in England the mortality was eleven per cent. Anything you can do to lessen the exposure of the soldiers to measles will be a real service to the army. If the town is a menace to the health of the troops in the vicinity the military authorities may of course keep their men in camp, prohibiting visits to the town. You should take it upon yourselves to render this action unnecessary, since such restrictions are undesirable both for the troops and for the adjacent community.

A constant and very important source of inefficiency in the army is venereal disease. In our base hospitals on the Mexican border during the last year from sixteen to twenty per cent. of the patients were suffering from venereal disease. The army regulation require that soldiers who have exposed themselves to the danger of venereal infection on returning to camp shall take prophylactic treatment. This in brief consists of an injection of protargol and an inunction of calomel ointment. Some soldiers do not take it, and others take it too late. So venereal infection keeps on among the soldiers. You can help the army by restricting prostitution and by examining such prostitutes as are allowed to practice their profession. Also by compelling prostitutes to maintain in their rooms facilities for cleanliness and some approved means for venereal prophylactic treatment. Some may think that sexual incontinence is confined mainly to soldiers in the regular army. Such is far from the truth. Among the regiments from the north and from other parts of the country on the Mexican border, the militia regiments that have been down there during the last year, venereal disease was extremely prevalent, and exposure to infection even more preva-

lent, as shown by the great number taking the venereal prophylactic treatment. While such conditions exist you can understand how important it is that your red light districts should be under proper supervision.

Safe, clean and sane amusement will be of great benefit to the soldier. He will frequent your theatres and moving picture shows, and you should see that these places are maintained in a sanitary, clean and well ventilated condition. Amusement and occupation when off duty will do much to keep the soldier from the brothel and the saloon. Efforts should be made by the community to provide amusement and companionship for the enlisted men of the army through the agency of the church, the Y. M. C. A., social organizations, and any other agency that may be at your disposal.

Courtesies extended by the boards of health and by the physicians in town to the medical officers of the camp will promote a coöperation and a good feeling which will be of mutual benefit. The boards of health should notify the commanding officers or the senior medical officers of camps regarding any insanitary conditions in their towns, or any infectious diseases, which might re-act unfavorably on the health of the troops. If the municipality maintains a laboratory it will often be of much assistance to the military surgeons in the vicinity to have its facilities put at their disposal.

Even if you have no camp in your vicinity you can be certain that some men from your towns or cities will be soldiers. These, as well as other soldiers, will come to your towns on visits. The best interests of the army will be promoted if the sanitary condition of your communities is such that no soldier on returning to his command will take with him an infectious disease which may not only disable him but may also spread infection among his comrades in arms.

If our country should be unfortunate enough to be invaded in certain sections, great quantities of refugees will retreat, will hurry away, in advance of the enemy, and may come crowding into your towns and cities, and if that unfortunate event should happen the responsibilities placed upon the health authorities in the way of maintaining sanitation among the refugee camps which would have to be established will be very great. There, again, you could be of the greatest service to the army and to the country.

Finally, in your capacity as health officers you can spread the information among the younger men in your vicinities that large numbers of physicians are at present needed in the medical corps and the medical reserve corps of the army. As a result of the increases in the regular army which were made last June there are about 200 vacancies in the regular medical corps at the present time, and will be about 200 more vacancies on the first of July. If the President should exercise his authority to make all the increments in the regular army at once the number of vacancies on the first of July would be very much greater. What the regular army wants is well trained, physically fit physicians, be-

tween the ages of 22 and 32, and who have had a year's hospital experience after graduation. To these the army offers a favorable opportunity for a life career. For the medical reserve corps the army wishes men between 22 and 55 years of age. Men entering the medical reserve corps are commissioned in that corps on the inactive list, and in time of need are called to the active list, when they receive the same salary and other perquisites that appertain to officers of the regular service. If we have to raise an army of a million men approximately 10,000 medical officers will be required. At the present time we have about 500 officers of the regular service, about 800 in the militia and approximately 3,000 in the reserve corps, leaving somewhere between 5,000 and 6,000 more medical officers whom we must obtain if we are to properly man this army of only a million men, and we know from experience on the other side that an army of a million men is not so very large after all. Therefore you should encourage the men who are physically fitted and of proper age in your vicinity to join either the regular army medical service or the medical officers' reserve corps.

Gentlemen, these are some of the ways in which you can directly assist the army, whether in peace or in war. By persistent and intelligent action along these lines you will contribute to the cause of national preparedness and give a very real contribution, and at the same time you will be promoting the interests of the United States which have been entrusted to your care.

Prof. Harold C. Ernst. Mr. President, Gentlemen: After listening to the two preceding speakers what I have to say may appear to cover too narrow a piece of ground, but I believe that they will acknowledge that it is one of the important factors in a general scheme of preparedness. What I have to say has to do with a practical job that was put on my shoulders, primarily from the surgeon general's office a little over two months ago; secondarily, but primarily now, as the chairman of the sub-committee on the mobilization of the laboratories of the state under the authority of the auxiliary Committee of the Council for National Defence.

The specific thing that I have been trying to do, and that you can help in completing, is to find out and ally together the laboratory resources, wherever they may be situated, throughout the state. The first line of effort that was suggested, came from the surgeon general's office and was supported by Colonel Chamberlain, and that is in case of mobilization to be prepared to search through the troops that are mustered into the federal service primarily for carriers of typhoid and para typhoid; secondarily, to be prepared to handle other laboratory questions that might arise in the concentration camps. Now, there are practical difficulties in the way of such an enterprise. If the quota of the state runs up to 20,000, 25,000, or 30,000 individuals, the job of investigating all of those persons, even for a single thing, as carriers of typhoid and para typhoid, is an extensive one, and we must have trained men, who

are competent to do it. That really is the main excuse for my being here today, to ask any and all of you who have information of persons trained in such laboratory technic, who would be willing to take part in such a line of work, to turn over their names, or have them send their names to me, so that the personnel may be as nearly as possible completed.

Doctor McLaughlin some days ago honored me by joining me on this committee of preparedness of the laboratories, so that we have the state laboratories to call upon,—the personnel. Doctor Mahoney did the same thing for the city laboratories. The Institute of Technology has joined also. I had the pleasure the other evening of addressing the Boston Bacteriological Club, many of whose individual members are going to join in. There are associated on the committee with me also experts in parasitology in toxicology and in biological chemistry, so that we shall be prepared at least to begin to carry out laboratory work in those various directions. I conceived an organization with a base here in Boston, but with all the laboratory trained technicians throughout the state allied in one common object, that is, being prepared to assist the army service so far as may be. And I may say that if I am fortunate I hope to be transferred from the reserve corps into active service. So much, then, for the laboratory side.

It has occurred to me also that there might be another line of assistance that some of you might feel inclined to render, and perhaps Colonel Chamberlain will pardon me if I trespass upon a path of knowledge with which he is infinitely better familiar than I, and that is the question of the organization of hospitals. You have heard a great deal, in this community particularly, which has been especially active, I believe more active than any other in this country, of the organization of base hospitals, and I myself have been complimented by being asked to serve as the director of a possible base hospital. It had not occurred to me that that was necessary at the moment, and so far as that particular base hospital is concerned that has been given up. A base hospital is a very complete, complex and stable organization. Under service conditions its personnel numbers something in the neighborhood of 193 or 195—the commanding officer, the medical staff, the nurses and the orderlies. These base hospitals are more or less fixed in their stations. They are large units, requiring expensive outfits, and placed more or less permanently in situations at some little distance from the front.

There are, however, other, smaller organizations that it has occurred to me the enthusiasm of some of the local medical men might lead them to organize. These are designated under the name of Hospital Units and of Surgical Units.

A Hospital Unit is a much smaller organization than a base hospital. It consists of a director, with a medical personnel of 8, a nursing force of 25, and a comparatively small number of orderlies. And even more important, as it seems to me, just at present, is that the equipment of a hospital unit

costs only about $3,000. Now, that is an organization that it is entirely possible to get up in small communities—comparatively small communities—at a comparatively small expense. All the members of the staff of the hospital unit must, like all the members of any other of these organizations, join the Officers' Reserve Corps. The use that would be made of such units by the War Department would be to transfer them rapidly to where they were needed in case of emergency, so that a Hospital Unit is not to be looked upon as fixed and more or less permanent in one place.

Then there is the still smaller surgical unit, so called. That is simpler still. It requires only four or five surgeons, who must enter the Officers' Reserve Corps, and a comparatively small number of nurses. These may be all skilled individuals. And here again is a body that will be transferred where essential to a new camp.

I was exceedingly interested the other day at receiving a letter from the surgeon general's office which closed with these words: "The crying need today is of members of the Officers' Reserve Corps, Medical Section, without a string to them." The need is, as Colonel Chamberlain has emphasized, of individuals who are ready to give their service, and to give it wherever they are needed, without waiting to have their own personal desires accomplished. And to my thinking, gentlemen, that is the essence of our need today everywhere, that we should all be ready to do our part and give our service without consultation as to our own personal desires.

Mr. Walter Maxwell of London, England, then addressed the meeting on the relation existing between this country and Great Britain and his own work in agriculture. A rising vote of thanks was accorded Mr. Maxwell at the close of his remarks.

The President. Gentlemen: We have listened to these remarks today from men who are best qualified to give them to us, and there is no doubt, as we separate here tonight and go to our various posts that whatever we do we should endeavor to carry out the lines that they have suggested, waiting for further orders, so to speak, if you want to call it that, which we may receive from Washington, if the plan which Doctor McLaughlin spoke of today materializes. Now, if there is anything that anybody wants to say don't be afraid to get on your feet and say it. If there are any questions you want to ask probably they may be answered by the speakers that are here today. We want to get all we can out of this meeting today, because we don't know what is going to happen, and with the organizations that are being formed in every community all over the state, as I said before all anxious to do the best and the most they can, when it comes to medical or hygienic questions you in your capacity should be the directors. They are bound to come to you. So if there are any doubts, if there are any questions, in your mind, don't be afraid to get up and ask questions, and see if we cannot in some way help you, so that when we all as a unit spread over this entire state and are working along certain definite lines

one board or one health officer won't be working in one way and another in another and tearing asunder. We want to get together, because in union, you know, there is strength.

Mr. Kirschbaum. I would like to ask Doctor McLaughlin, if it is his intention or the purpose of this meeting in Washington to communicate with the various boards throughout the state, outlining what is expected of them.

Dr. McLaughlin. I will say, Mr. Chairman, in answer to that that the systems in the various states are so different that it is going to be a very difficult job, because of our peculiar form of government, to work out the exact manner of this coördination. In Massachusetts it will be comparatively simple; in other words, we will go on just as we are going, gentlemen. We have no trouble in Massachusetts about coöperation and coördination. It is not written in the law, as a matter of fact. Theoretically, perhaps, they might say our laws in Massachusetts were weak. Personally I have not found them so. I have not found the need of anything stronger in the way of binding together the local and the state health authorities. We have no trouble whatever. What the other states will do I don't know, but the first meeting in Washington will define just what the relations shall be between the state health authorities and the federal public health service, and there will also be provision made, probably, for a sanitary reserve corps. I don't think there is any question about that. I think that probably we will have to have in the states some kind of an emergency sanitary reserve corps. But those things you are quite right, Mr. Kirschbaum, will be threshed out in Washington, and after we get back the state health officers will have something more definite to go to our local authorities with and put before them, and I promise that that shall be done as soon as I get back.

Dr. Dionne. A few days ago I learned something that may be an explanation of the fact which Doctor McLaughlin mentioned a little while ago regarding the nurses. I believe that he somewhat complained of the great willingness of nurses to join the Red Cross and go to the front. I was talking with one of them, one who is about my age, not superannuated by any means, and who has already registered with the Red Cross and wants to go to the front. Finally I said, "Now nurse will your frankly tell me why you are so anxious to go there?" and she did answer frankly. She told me that it was because they generally had a proposal every pay day.

Now, gentlemen, regarding the possibilities of local boards of health, regarding the things that they can do toward preparedness I beg to mention what we have done in the town of Ware. Allow me to say that the Ware Board of Health, which I represent here today, owing to its peculiar composition, is perhaps better fitted than any other board in this representation to meet the ordinary war contingencies. It has a physician, it has also a plumber to look after the trenches and an undertaker to bury the dead. (That has been my association for the last few months, and I have got to stand

it for the balance of the year. But we plan to live through it.) Notwithstanding this combination since the day that the war was declared we have been on the lookout. We did not even wait for authority from Doctor McLaughlin. Our water system, our reservoir, has been under constant guard. We have told the people that a culture of the typhoid bacilli thrown into that reservoir could do more harm than fifty guns, and they have placed it under guard. Our chief of police has arranged with the Otis Company (our largest plant), to place thirty-five additional lights around the premises, and we claim that that is one of the best ways to prevent foul play. Since the declaration of hostilities my car has been ornamented with a red cross beside the green one. Our chief of police knows that the car is fitted with everything that may be necessary to meet any possible accident, and that it can be called at any time, and may be boarded by any physician in emergency and if I cannot do any better than to drive it I will get there.

But now, in regard to the remarks that have been made concerning the sanitation of milk, etc., I will say that I have always been surprised at the conditions which are found in the country around a large number of farmhouses. We are progressive in the cities. We look after the milk. We look after the immediate milk supply being very particular about milk cans, milk depots, etc., but too little attention is given to the source of production. If you go to the farms you are apt to find there the same condition that prevailed a hundred years ago. You find the open privy vaults, the open sink drains; in other words, the human excretions are not controlled and they are made accessible to flies. And I ask you, gentlemen, in the occurrence of a case of typhoid fever what could you expect? We have had it. We had one time nineteen cases of typhoid fever which were traced to one particular case uncontrolled which occurred in the family of a milk man. It is my opinion that no man should be given a license for the production of milk for sale unless the privy vaults and sink drains on his premises are screened.

Dr. Laura Hughes. I rise in defense of the statement that Red Cross nurses always get a proposal on pay day. I am a member of the Nursing Service Committee of the American Red Cross for the City of Boston. I have been the chairman for a great many years. This last year I am not the chairman. And I want to comfort all the gentlemen with the knowledge that no nurse for the American Red Cross will go into service who is over 35 years of age. We have over 8,000 registered in the United States, and we have a very large number registered in Boston, so that we have enough to take care of all the home work, etc.

As one who has had considerable experience in disasters I do feel that I might add this little bit of an item, possibly, to the discussion today. During the Salem fire I had charge of the entire nursing system, and many times I have been asked: "What did you do with nurses during the Salem

fire?" You perhaps know that we had 5,000 people living in tents, we had 500 children, we had 125 bottle fed infants, and without even one case of intestinal disease, because we had Red Cross nurses on duty from the very first morning. All sorts of persons have endeavored to claim the title of being the first there and taking charge of the nursing service, and all that sort of thing, until the Red Cross nurses arrived. I arrived first, with Miss Mabel Boardman, and the surgeon general put me in charge. We had Boston Red Cross nurses, people that I knew very well indeed, several of whom had worked with me before some of our Boston school nurses, who had special training in feeding were in the group but they were all Red Cross nurses, and who immediately began under the doctors to take charge of the infant feeding. In my opinion it is very much better to prevent disease than to cure it, and so we prevented intestinal disease in that particular place. That was one of the things. Then the nurses had charge entirely of the field hospital work under the Medical Corps of the M. V. M. Remember, there was no sewerage, there was no water, and all that sort of condition that goes with a disaster. And another thing that prevented disease was the very frequent, the four times a day inspection of the tents. I don't want to appear pedantic here, but few of you have had the opportunity that may possibly come to us. If our community gets into some kind of hysterics and the people all run out to Ware, or some such place, to live in tents for safety, one of the very best things to do is to have frequent inspection of those tents. Surgeons, under our splendid surgeon general, Dr. F. P. Williams, made an inspection every morning and evening with Red Cross nurses. Occasionally we found hysterics, as we did during the Spanish War; but after the morning inspection, with the surgeons and the nurses going round about, there were many little things that did not come to the attention of the surgeons, and that were not exposed to the surgeons. Again, during the forenoon I had these trained nurses making inspections of tents.

If you remember, the Salem fire was on a Thursday night, I think, and Friday morning we began our real work. The tents were up some time on Friday. The people really got into the tents on Friday and Saturday, and on Sunday afternoon we got the heels of 200 loaves of bread from under the pillows and under the mattresses and under the bed clothing. You will say, why did we bother with taking out 200 heels of bread; why not leave them there to feed those children? We felt that if the bread, and pieces of meat, etc., were allowed under the floors and the mattresses of the tents they would attract the field mice, and the field mice would carry bacteria from some other section of the community.

Then we had the military commanding officer, who was entirely ready to coöperate with us and who was looking for measles, a disease that always comes in camp life. We did not have measles, because we tried to

prevent it and keep it out by preventive measures.

Again, in the afternoon, these nurses made another inspection, and the soiled clothing of these 125 babies was required by force sometimes to be taken out of the tents and down yonder to a place where the women were allowed to wash it.

The women were not allowed to eat in the tents. They could have all they wanted to eat, but one of the conditions—regarded by many as a great hardship—was that they were not allowed to stay in the tents and eat. They went to a large marquee tent, where they had all the good food they wanted, served army fashion,—good plain food. And that is, it seems to me, a very good suggestion.

Again we had no measles, besides not having the intestinal diseases; in fact, we had no epidemic whatever, and it was entirely due to preventive work. We were just as busy doing preventive work as other people would be curing measles and intestinal diseases, etc. I had experience during the Spanish War at Montauk Point with these terrible intestinal diseases, etc.

So I want to suggest if we should all run to Ware or some such place that we shall have these Red Cross nurses who are over 35 and therefore not eligible for the army active corps and that you medical men who are of course always in command will see that the nurses make these inspections, whether it is pay day or not. In that way we can prevent preventible diseases. I hope that we won't have any war, but in case we do, and we have a large number of people to inspect under canvas. I hope these ideas may help some to show what we did in Salem with 26 nurses and no sickness. The answer is that we prevented the sickness.

Dr. Dionne. My remarks have brought us a treat from this lady. I have been coming to these meetings for years, and I never heard a more interesting talk. But I beg to say in explanation that what I said could not concern the Red Cross in the least. It simply regarded certain people, of my age, who want to go to the front and give or dare not give their reason for it. As I am not a bachelor, I dare to tell you that I am fifty-four.

The President. In regard to the Red Cross nurses, gentlemen, I will say that all the nurses of the Boston Health Department a year ago joined it; but I have been led to believe that the Red Cross will not call upon any member of its association who is already connected with public health work in any way, shape, or manner.

Dr. McLaughlin. Might I say just a word before you adjourn? That is, gentlemen, that if in your respective communities you have not heard of a committee of public safety, or a sub-committee of that committee on hygiene, medicine and sanitation, you should ask questions and find out why such a thing is not in existence.

Dr. Hughes. I should like to ask Doctor McLaughlin if he does not think it is just the thing for an emergency to have in each community one of these medical committees, just to meet these groups of people that may get hysterics and run away from Boston to these other communities.

Is it not a good plan to have them all organized before we actually get there, so they will be ready for us?

Dr. McLaughlin. That is the idea, yes. On our program we have just the idea of having an emergency unit. That will be brought up and discussed.

Dr. David Brough. I should like to ask Colonel Chamberlain one question, and that is in regard to milk. With the troops in the camp is anything done to have milk pasteurized to prevent typhoid fever, or is there any way in which boards of health could coöperate with the military authorities in to see that the milk used is pasteurized to prevent infection?

Colonel Chamberlain. We do not require that the milk be pasteurized. In all camps of permanence and in military stations we have the milk examined from time to time, but of course to a large extent we have to depend upon the efforts of the health authorities in the vicinity, and in progressive states like Massachusetts I believe almost uniformly that the public supplies are safe. In view of the fact that our people are all adults the question of pasteurization I do not think is of so very great importance. The question of typhoid we have practically eliminated from the army now by reason of the typhoid inoculation. In 1898 we had in the army about 22,000 cases of typhoid, with approximately 2,100 deaths. That occurred for the most part due to infection received in the United States. Now, take the situation with our typhoid prophylactics. On the Mexican border last year we had approximately as many troops mobilized as we had in the Spanish War, and yet we had only 46 cases of typhoid and one death, that one death being in the person of a doctor. So I would not say that we would insist upon milk being pasteurized, but we would like to be assured that the supplies in the locality in which we get the milk have been tested by the usual means to determine that the milk is of good quality.

There was one more thing which I meant to say earlier, and that was with reference to the need of medical men both in the regular army and in the reserve corps. That need is very, very pressing, especially for young men for entrance into the regular service, men between 22 and 32, with a year's hospital experience. Such men can be of the greatest assistance to the army at the present time. If you will bring that to the attention of young men in your localities and urge them to consider the army service as a career, it will have good results. One of my duties in Boston is to help anyone who wishes to enter either the regular service or the medical reserve corps. I have an office in the medical school, where I am located part of the time, and the remainder of the time I am at Fort Banks. Either personally or by letter or by telephone I would be glad to offer advice and assistance to anyone who wishes to enter either the regular service or the reserve corps. I cannot too strongly urge you that you bring the matter to the attention of the medical men of suitable age and physical fitness in your localities.

The meeting then adjourned.

TUBERCULOSIS IN FRANCE

DR. HERMANN BIGGS., *Commissioner of Health, New York State.*

An informal address before the Conference of State and Provincial Boards of Health at Washington, D. C., May 2, 1917.

Mr. Chairman and Members of the Conference:

ABOUT a year ago, the attention of the Rockefeller Foundation was brought to the extensive prevalence of tuberculosis among the French troops, and the Foundation was urged to take up the matter and have a study of the situation made. Accordingly, last summer, Professor Sabin, who is the Harvard exchange lecturer at the Sorbonne this year, was requested to make an investigation and report as to the situation. Dr. W. H. Welch of Baltimore also made a brief investigation at the request of the Foundation. As the result of this study of Professor Sabine, in the autumn, it was suggested that an International Tuberculosis Commission be appointed to visit France and all belligerent countries to determine what effect the war had had on the prevalence of this disease. On more careful consideration the trustees felt that sufficient information was not at hand to justify this action and asked me to go to France to study the conditions and report, with recommendations, to the Foundation.

In company with Dr. Dochez of the hospital of the Rockefeller Institute, and Mr. Winslow S. Pierce, a prominent lawyer of New York City, I visited England and France in January and February. We had the hearty coöperation of the French Government. Upon our arrival in France, Count Sagonzac, an attaché of the Foreign Office, called at our hotel and said he would be at our service to make all arrangements necessary to facilitate and expedite our investigation, and the War Department placed a military car at our disposal. The Minister of the Interior, who is the Director of Public Charities and Hygiene of France, gave us every assistance and opportunity to study the situation.

Briefly stated, the conditions are as follows: There has been a great increase in the prevalence of tuberculosis in all of the armies of the belligerent countries excepting only in England. England has suffered comparatively little.

All of the diseases which formerly have been scourges to armies in the field, viz.: typhoid fever, typhus fever, smallpox, cerebro-spinal meningitis, cholera, etc., have been brought under control quite readily, excepting at certain places and at certain times when well-recognized preventive measures were neglected, or were not put into effect, as in Servia in relation to typhus fever. In place of these epidemic diseases, tuberculosis has now come to play a large part, and in France the conditions are particularly unfortunate.

France mobilized a great army with great rapidity, and it was impossible, under the conditions prevailing, to make thorough physical examinations of the troops. The result was that very large numbers of cases of latent, incipient, or arrested tuberculosis were mobilized, and many of these developed active disease in the preliminary training camps, and still more developed the disease after being subjected to the hardships of life at the front.

We do not ordinarily think of armies in the field under the conditions which actually now obtain there. We think of them as living in tents, with plenty of sunlight and open air—the very best possible conditions—but under the conditions imposed by modern warfare as it exists in Europe today, we do not find these conditions at all. On the contrary, we find that the troops at the front live in the trenches, or in dug-outs under ground, still colder and wetter than the trenches. When they are not on the front lines they are billeted in peasant houses in the villages and towns near the front, or in out-buildings very much overcrowded with very little air or sunlight. There is a natural aversion to fresh air among the French people, and the result is that windows and doors are rarely opened, and we thus find ideal conditions for the development and dissemination of tuberculosis.

There is a very instructive sanitary lesson in connection with this. Before the war tuberculosis was very prevalent in France. Tuberculosis had never been officially recognized by the French authorities as a communicable disease. It had not been made a reportable disease. No great campaigns had ever been undertaken to instruct and educate the people on any public health question or on the prevention of tuberculosis. At the beginning of the war there were only about 1,000 sanatorium beds in the whole of France and these were entirely in private institutions. There were no hospitals or other facilities for the care of advanced cases. These cases were received in the general wards of the general hospitals, and cared for there, if cared for at all. There were no trained nurses or trained social service workers for visiting the homes and instructing those infected. The death-rate has been high from tuberculosis in France, about 3 per 1,000, 30 per 10,000, and in the cities it is much higher. In most of the cities from $3\frac{1}{2}$ to 4, and in some more than 5 deaths per 1,000 occurred annually. When you contrast this with the situation in this country or England you realize how very unfortunate it was. The death-rate from tuberculosis in England is about 1 per 1,000 and in this country in the registration area about 1.4 per 1,000.

As a result of the conditions I have just described, there existed a wide dissemination of the disease in the civil population, and after mobilization many of these cases developed active disease and it was widely disseminated among the troops. At the end of 1915, 85,000 French soldiers had been returned to their homes with active tuberculosis. The enormous numbers of cases being returned aroused the French Government to provide some

measures to meet the situation. It was impossible to provide hospitals for the institutional care of cases and they therefore, after much consideration, determined to deal with the problem primarily through the establishment of dispensaries. At the same time the French Government called upon the various departments (which correspond to our counties, there are about 85) to provide facilities so far as possible for the care of their own tubercular soldiers, and it further directed that soldiers discharged from the army with tuberculosis be received in these improvised stations, "stations sanitaire," and kept there for a period of three months.

During this period of three months they were to be instructed as to the nature of tuberculosis, its mode of communication, and the measures to be taken for its prevention, it being thought that in this way these cases, when returned to their homes, would be a less serious source of danger to their families.

They had up to January or February, 1917, provided in institutions of this sort about 10,000 beds. They hope, before the end of the year, to increase this number to 15,000. The French Government has, in the meantime, taken over all hospitals and sanatoria available for the care of tubercular soldiers, so that at the present time there is no place where a woman or child, or any person who has not been a member of the combatant forces, can be sent for treatment and care.

At the time we were in France it was estimated by the authorities (although no accurate data were available) that there had been about 150,000 cases of active tuberculous disease in the Army alone. Of course the number of beds available, 14,000 or 15,000, which they hope to have at the end of this year, scarcely touches the problem. They propose to establish dispensaries. A law was passed providing for the machinery for this purpose, and for the apportionment of the expense on the municipalities, the communes, the departments and the state, but the establishment of the dispensaries is voluntary on the part of the local authorities throughout the country.

There were about 4,250,000 people in the departments of France occupied by the Germans, and about 2,000,000 of these fled from their homes before the German invasion and are quartered, for the most part, in very unsanitary lodgings near the front, as near their original homes as possible, a large number being housed in Paris. The French Government, to protect these refugees, soon after the war began passed a law which prohibited the eviction of refugees for the nonpayment of rent, the purpose being to protect these refugees. The result of this law was exactly the opposite from what was intended because it made it impossible for the refugees to get good lodgings. Landlords realized that they would have to be cared for for the period of the war without compensation and they refused to give them lodging, or else gave them lodgings of the poorest type. These refugees are not only homeless, but are without resources, and are solely

dependent upon relief organizations for their support.

You can understand, living in dark, crowded quarters, with very insufficient food, why the incidence of tuberculosis among them has been so great. It is impossible to say how great this incidence is, but it is very great.

About two and one-quarter million people remained back of the German lines, a part in their homes, a part in concentration camps and a part were deported by the Germans into Germany. Almost all, I think, between the ages of 15 and 45, both men and women, were deported to Germany. Many of these civilian prisoners, who became ill or a burden have been returned to France through Switzerland. At the time we were there, about a thousand a day were being returned and they were in the most deplorable possible condition. It was estimated by the French authorities that of the first 20,000 who were returned to France, nearly 5,000, or 25 per cent. were suffering from tuberculosis. They had been taken from their homes at the time of the first German invasion and many of them had never had their clothes changed from the time they were taken from their homes until they were returned seven or eight months later.

Of course it is impossible to know how many cases of tuberculosis there are among the civilian prisoners, but a very conservative estimate would probably be from 3 to 4 per cent. That probably is very low. That would give 150,000 or 175,000 more cases of tuberculosis which France has to deal with. Aside from these, there are in Germany about 350,000 or 400,000 prisoners of war. These prisoners of war have been living under the most unfavorable conditions possible; they are much crowded and with very insufficient food, subject to all kinds of hardships, and the sickness and death-rate among them has been very high. In the exchange of prisoners with Germany, we were informed of those coming back sometimes 30 to 40 per cent. were suffering from tuberculosis.

It is due to this fact that the statement was made and gained a good deal of currency, that the Germans had deliberately inoculated prisoners with tubercle bacilli. There is no evidence or proof of this. What happened is what one would expect to have happened under the conditions existing. The French soldiers had much tuberculosis among them—there was no attempt to separate the tuberculous from the well—they were all mingled together, under conditions particularly favorable for the spread of the disease, and at the same time of course they were very much undernourished. The result was that cases of the disease multiplied rapidly among them. Those returned are not to be regarded as a fair indication of the extent of tuberculosis of those remaining back of the German lines.

In talking with an attaché of the American Embassy at Berlin, whom I saw after Mr. Gerard and his party left there, he told me that he had been inspecting the French prison camps in Germany, and that, while there was a great deal of tuberculosis among the prisoners and no attempt had been made at the isolation of these cases, he

did not see anything to indicate such a large incidence of the disease among them as had been claimed by the French authorities.

Aside from the cases in the groups of population referred to, we have the tuberculosis cases in the civil population which, of course, have not decreased in France since the war. The disease has undoubtedly increased there as in all of the countries at war, excepting Great Britain. Previous to the war there were in France annually about 100,000 deaths from various forms of tubercular disease. If we estimate the number of cases of tuberculosis there from the number of deaths occurring annually, we can get some idea of the number of cases in the civil population. In New York City, where we have about 9,000 deaths a year, we have reported annually about 22,000 new cases, and there have been as high as 30,000 to 35,000 cases under observation. If we estimate the cases in the civilian population for each death occurring annually, this would give us 200,000 cases. It would be a conservative estimate to say there are 150,000 cases in the civil population aside from those already accounted for.

Tuberculosis offers a problem of stupendous magnitude in France. If the war were to end now there would be between 400,000 and 500,000 cases of tuberculosis to be cared for, and practically no facilities to deal with them. France will have about 15,000 beds at the end of this year, and half a dozen well-organized dispensaries, and a somewhat larger number of poorly organized or very small dispensaries. They have only a few physicians at all familiar with the tuberculosis problem; they can almost be counted on the fingers of your hand; no trained nurses or social service workers. One may gain some idea of the situation as to the public health laboratory facilities and their utilization when advised that the year before the war, in 1913, in all of the public health laboratories in France, there were examined only 6,500 specimens of sputum. On the other hand in New York City, in a single year, there have been over 60,000. This gives you some idea of the contrast between the situation in France and the situation in some of our larger cities here.

Contrast with this the situation in England. England has a very efficient public health organization and administration. For many years this country has been very active in anti-tuberculosis work and the death-rate is lower than it is in any other great country in the world, about 1 per 1,000 of the population. The mobilization of the troops was done deliberately, special care was exercised in the examination of recruits,—a special physical examination and exclusion where there were any signs of disease. The result has been in England, instead of having tens of thousands of cases of tuberculosis, there have been only a few thousands, and yet England has mobilized an army of over 5,000,000 men.

The experience of England and France with reference to the prevalence of tuberculosis among the troops is one of the most instructive and encouraging exhibitions on an enormous scale of what public health activities, well-directed, will accomplish.

and what heavy penalties the neglect of such activities, either in time of peace or war, involve.

Discussion.

Dr. Rankin, North Carolina: I would like to ask a question and that is, just what part the British Public Health Service or the English Service corresponding to our U. S. Public Health Service and our state organizations have taken with the British military organization. Have they gone in under the army or maintained in separate organization? You see the bearing my question has on the situation we are facing now.

Dr. Biggs, New York: The public health organization in Great Britain is somewhat different from ours. The whole of England is divided up into sanitary districts. Every district has a well-qualified public health officer, and, excepting in the smallest districts, this officer must have a diploma in public health. The general supervision of the health work of England is under the local government board, the president of the board being a member of the British cabinet. In Scotland, Ireland and Wales they have a similar organization. The local administration in each one of these is under the general supervision of the medical officer of the local government board of each country.

I don't know how active a part the local health officers have taken. In many cases they have been members of the Reserve Medical Corps—that is not the exact name, but it corresponds to that—who have not been called to the front, and in this capacity they have taken part in the sanitary supervision of the troops.

The President: Gentlemen, I think that if we did not get anything else from Dr. Biggs, the information he has given us in a few minutes, pays us for our trip here, and I suggest a rising vote of thanks for the information given us.

A rising vote of thanks was thereupon extended to Dr. Biggs.

Dr. McCormack, Kentucky: I would like to move that the President and Secretary extend to the Rockefeller Foundation the great admiration of this Conference for the work they propose to do for our allies in France.

Dr. McCormack's motion was adopted.

National Certified Milk Contest.—The National Certified Milk Contest held at Brooklyn, N. Y., June 1 to 4, 1917, in connection with the eleventh annual meeting of the American Association of Medical Milk Commissions, was interesting in many ways.

Twenty-one entries were received from a like number of dairies supplying milk to cities in different parts of the United States. The milk was eight days old when examined and despite this, two-thirds of all of these entries of raw milk had bacterial counts of less than one thousand per cc.

The average score of all entries was over ninety-five points out of a possible one hundred.

Milk from the certified dairies of Arthur Meeker, Lake Forest, Ill., Wilco Farms, Willisville, Ill. and J. D. Farrell, Renton, Wash., each received a total score of 97.5 points. Each tied for first place in the National Certified Milk contest. As the bacterial counts were minus 100, 200 and 400 per cc. respectively, Arthur Meeker was awarded the first prize, Wilco Farms the second prize and J. D. Farrell the third prize.

In speaking of this contest too much can hardly be said regarding the shipment of Certified Milk received from Seattle, Wash. This milk from five farms, which after traveling for seven days, a distance of over three thousand miles, upon examination was found to average 96.8 points out of a possible one hundred.

The chemical and bacteriologic work was done in the laboratory of Dr. Harris Moak of the Kings County Medical Milk Commission by J. A. Gamble, Market Milk Specialist of the United States Department of Agriculture, detailed for the contest.

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THE WAR AND THE VENEREAL PROBLEM.

Every thinking sanitarian realizes that one of the great problems of the war will be the prevention of the venereal infections among troops and industrial forces. That this cannot be accomplished by any single means is equally apparent. Given a group of diseases which are limited to human beings, which are essentially chronic; which are spread by a contact usually having as its basis the strongest of human desires and it is seen that rigorous measures along diverse lines will be necessary to prevent and eradicate it. The problem is essentially that of a chronic-carrier, contact disease. If all cases which are in the infectious stage are apprehended on enlistment and if separation from chronic carriers, *i. e.*, infected persons, is absolute, the disease group will cease to exist. It is in effect a quarantine, a breaking of the cycle of infection. The cure of all chronic carriers would also break the cycle but this is manifestly impossible; the prevention of the sale of alcoholic beverages will help enormously but cannot be relied upon absolutely; the application of moral force by sex-education will bring about a certain degree of self-restraint but only in a small percentage of cases; absolute continence would control the disease group except in those unusual cases in which the infection is spread through other varieties of contact. Evidently then, the therapeutic attack should not be diminished, and the spread of knowledge regarding the venereal diseases should be unchecked. The only sure method against these infections, however, is continence, and in the case of men under discipline, it is publicly enforced continence, in other words the quarantining of the susceptible individual against the prostitute. This is a civil measure. Military authority will control the military zone itself. It should not in addition be obliged to handle the matter in civilian communities. Congress has, however, empowered the Secretary of War to do so if in his judgment it is necessary. This much overworked individual and the Medical

Corps of the Army should if possible be spared this burden—as a matter of fact, the civilian health officer with the backing of the police power of the state is in a much better position to administer this problem. More than this, if he will take active and energetic steps to control prostitution,—and this is the one dependable measure,—he will not only be doing a patriotic service to the fighting arm of the government but to the productive civilian population as well. Not only is it imperative that an attempt be made to control prostitution among those who ply their trade openly,—it is even more important that clandestine operatives be removed from the zone in contiguity to troops. Butte (*Bul. de l'Acadde Med.*, 1, LXXVII, 7, 13 Feb. '17, p. 210) reports that of 10,000 such persons examined, 2,655 presented venereal disease, and over five hundred of these were syphilitic. The venereal problem is an epidemiological one and does not differ in any essential particular from the other contact infections in which chronic carriers occur, therefore the indifference which many health officers have displayed to this question in the past is the more inexcusable particularly in the face of a war in which the maintenance of the military health is so essential.

THE TUBERCULOSIS COMMISSION FOR FRANCE.

Readers of the JOURNAL will be interested in the following extracts from an editorial from the *Journal of the Outdoor Life* for July, as it concerns Dr. Livingston Farrand, for some years editor of this JOURNAL and Treasurer of the American Public Health Association:

Probably the most distinct compliment the campaign against tuberculosis in the United States has ever received has been the recent appointment by the Rockefeller Foundation of Dr. Livingston Farrand and a party of associates as a special commission to France for the purpose of establishing there an anti-tuberculosis movement modeled after our work in this country. To have chosen a man of the ability and experience of Dr. Farrand, who was the genius of the first nine years of tuberculosis organization work in the United States, is an added compliment and reflects honor not only on Dr. Farrand personally, but upon all of those who have labored to make the tuberculosis movement of this country a success.

More than a year ago, when the Duc De Richelieu came to this country as a special envoy from the French Government to study the anti-tuberculosis movement here, we began to learn something of the problem of tuberculosis in the French armies. A result of the reports of the Duc and others was the sending of Dr. Hermann M. Biggs, State Commissioner of Health of New York, to France to look over the ground and to make a report of conditions as he found them.* The picture that Dr. Biggs has presented in his several public addresses and reports culminating in his recent paper before the Annual Meeting of the National Association, is one that is even more alarming than that given to us by the Duc De Richelieu and more awful in its future possibilities for sapping the vitality of the French nation than any one in this country had previously realized.

With more than 150,000 soldiers already discharged from the French armies, with an appalling incidence of tuberculosis in the devastated and war-ridden regions of northern France; with an even greater incidence of this disease among French refugees and prisoners who are coming back into their native country from exile in Germany and Switzerland; and with a very high normal death-rate even before the war in the entire French population, the figure that Dr. Biggs gives us of between 400,000 and 500,000 cases of tuberculosis at the present moment in France is one that is truly enormous. It would seem as if the plague of tuberculosis will threaten to sap the very life-blood of the French people after the war unless very drastic measures are taken now to control it.

As Dr. Biggs has also well pointed out, the plight in which France finds herself today because of tuberculosis is due almost entirely to her failure to recognize this disease as a serious problem during the years before the war started and to take precautions against it. It will be the herculean task of Dr. Farrand and his associates to begin at the bottom and to organize in France the voluntary and public effort that will secure for the nation institutional, dispensary and nursing care and that will provide educational facilities to safeguard and instruct the people concerning the ravages of tuberculosis. Fortunately, France has the experience of the United States and other countries to build upon. If the results obtained in this country shall prove helpful to our sister republic and ally across the seas, the investment of time, money and personal sacrifice in this country will be amplified many, many fold.

*An article on this subject by Dr. Biggs appears elsewhere in this issue.

OBSERVATIONS AND EXPERIMENTS ON DISHWASHING*

WALLACE A. MANHEIMER, PH. D., Assisted by THERESA YBANEZ
Research Laboratory, Department of Health, New York City.

SO FAR as we know there has been no investigation on dishwashing as performed in public restaurants. That dishes are possible vehicles for disease transmission is recognized in the laws against common drinking cups and in the practice of sterilizing dishes used by patients suffering from infectious diseases. Although the latter practice is almost universal and although it is well known that sometimes persons in apparently good health discharge infectious material from the mouth, no attempt has been made to determine to what extent such material may be transmitted to patrons of restaurants using common dishes. It was decided, therefore, to inspect a representative number of restaurants in New York City, and to test out experimentally the efficiency of the methods in use.

Restaurants can be grouped on the basis of dishwashing, into two classes: (1) those using the hand method of dishwashing, comprising by far the larger number, and (2) those using mechanical apparatus.

DISHWASHING BY HAND METHOD.

Twenty-two of the establishments visited used the hand method of dishwashing. These included both cheap and highclass restaurants.

Inspections.—The glasses used at the drinking fountains of the average quick lunch restaurant are not washed at all. Usually, there are a dozen or more glasses on a shelf above the water faucet, which, after use are rinsed off and placed upside down to drain. These glasses are not washed, and are therefore, little better than poorly rinsed common drinking cups.

The practice relative to the cleaning of glasses in confectionery stores is poor. Glasses after use are rinsed off and used again without drying them for serving soda water to a second patron. The spoons are shaken around in water and stood in metal containers from which, although frequently wet, they are served to the next patron.

Although in the restaurants of this group there is considerable variation in the care exercised to produce clean dishes, the process is substantially the same in all places. The dishes are placed in large dish pans containing warm soap water, are rubbed with a dish cloth and then removed to another dish pan containing warm water for the purpose of rinsing off the soap. They are next removed to a draining board and then dried with a towel. In several of the establishments the dishes are not dried with towels, being allowed to dry in the air, the waiter rubbing them with a napkin to remove noticeable spots before

* Received for publication, December 22, 1916.

placing them on the table. The temperature of the dishwater was, in every case, below 45° C. This is unavoidable because the dishwasher must constantly introduce his hand into the water.

Bacterial Data.—Bacterial counts were made from samples of dishwater and from moist sterilized swabs rubbed over cups, spoons, forks, etc. As expected, the counts fluctuated greatly. Naturally, if dishes upon which there had been milk were washed, the dishwater counts would be high; if, on the other hand, the water were changed at the beginning of the inspection, as frequently happened, the counts would be low. Consequently no conclusion on the care exercised in washing dishes can be reached from the bacterial counts obtained either from the dishes or the dishwater. The counts obtained, however, are included below for comparison with those obtained from the water of the mechanical dishwasher to be described later. Although no definite conclusion as to the efficiency of the hand method of dishwashing is advanced as a result of study of the bacterial data, we should like to draw attention to the large number of high counts obtained from dishwater and from swabs of spoons and cups.

BACTERIAL COUNTS—HAND DISHWASHING.

Dishwater—per cc. on agar (24 hrs.).

No. of bacteria.	*No. of places.*
Between 1–100	1
Between 1000–50,000	5
Between 50,000–100,000	1
Between 100,000–300,000	6
Between 300,000–500,000	4
Above 500,000	1
Not taken	4

Swabs from spoons.

Between 1–100	8
Between 100–1,000	6
Between 1,000–50,000	3
Above 50,000	3
Not taken	2

Swabs from rims of cups.

Between 1–100	4
Between 100–1,000	5
Between 1,000–5,000	11
Over 50,000	2

Tests on Manual Dishwashing.—Since little information can be obtained from direct examination of dishes and dishwater, series of tests were conducted for the purpose of observing the reduction in the bacterial counts of dishes artificially infected and subsequently washed in a restaurant. Sets of dishes were smeared with bacteria suspended in salt solution, in broth, and in egg albumen. These bacterial suspensions were left to dry on the dishes before the latter were washed. The bacterial suspensions were made up from a salt solution suspension of an agar slant of Bacillus pyocyaneous. Equal quantities of the suspension of bacillus pyocyaneous were added to tubes containing 10 cc. of salt solution, 10 cc. of broth and 10 cc. of egg albumen. The dishes were smeared with equal quantities of these suspensions so that, in a measure, the reductions due to washing would be comparable. The dishes after being washed in the kitchen of a clean lunch room were returned to the laboratory. The surfaces were carefully rubbed with sterilized moist swabs and the washings plated out in agar.

While the cleansing of the dishes was, no doubt, unusually thorough, since the object of the experiment was

known by the dishwasher, the reduction effected by the hand washing was even much greater than we expected. The counts were as follows:

Controls.	
Non-infected (sterilized) plates (6) Count, between 0–2	Infected plates not washed (6) Total count 500,000 to 700,000 B. pyoc.

After Washing.		
Dishes infected from salt sol. B. pyoc. (12) Total count, between 50–80	Dishes infected from broth—B. pyoc. (12) Total count, between 100–150	Dishes infected from egg albumen—B. pyoc. (12) Total count, between 100–180

Tests were made on the possible bacteriocidal effect of the soap powder used, by suspending bacillus pyocyaneous in solutions of the powder prepared similarly to those used in the restaurant. No material reduction in the bacterial counts was effected. The soap, however, had a high deturgent value in removing bacteria previously dried on Petri dishes.

The experiment above indicates that careful washing of dishes by the hand method, especially if soap is used, is highly efficient, even though the bacteria had been dried on from the suspensions of salt solution broth, or egg albumen. It should be remembered, however, that the washing of these dishes was far more carefully carried out than is usually the case. Although the above experiment would tend to foster confidence in manual dishwashing, our inspections convinced us that this method is highly unsatisfactory. The dishwater is not changed frequently enough, the dishes are insufficiently rinsed, and soiled towels are used for drying. Flies were observed in contact with the empty dishes even after they had been washed; flies were observed also in contact with the dish towels. During the busy lunch hour, in large restaurants, where several hundred persons are served, dishes must be cleaned rapidly for immediate use. Cleanliness is too frequently sacrificed for speed. If hand washing were carefully performed, we believe it possible to obtain satisfactory results. On the other hand, we think it very difficult to enforce care in the washing of dishes by hand.

Mechanical Washers.

Inspections.—Six establishments using mechanical apparatus for dishwashing were inspected. The apparatus for this purpose varies somewhat, but substantially the following description will answer for all. The dishes are packed in wire crates of proper size to be lowered into a vessel containing boiling soap water. At the bottom of the vessel containing the boiling soap water is a fan attached to an electric motor; when the fan revolves, the water is violently agitated and the dishes thereby thoroughly washed. After exposure to the boiling water for about one minute, the crate is transferred to another vessel containing clean boiling running water. Here the dishes are raised and lowered several times and then transferred to a drying board, where they are stood on edge to dry in the air. The dishes

are so hot that hand drying is not necessary and thus considerable manual labor is saved. Furthermore, this operation is very rapid, one man being able to accomplish the work of several, and at the same time getting much better results. The appearance of the dishes is far better after this process than after the hand washing process; there are no grease marks on the dishes, which now have a clean shiny appearance.

Bacterial Data.—The temperature of water in the dishwater in all cases but one (where it was 70° C.) was at or slightly under 100° C. By referring back it will be seen that the temperature of the water in the hand washing process never exceeded 45° C. and was indeed usually under 40° C. The bacterial counts of the water from the mechanical washer were consistently low, never exceeding 10 per cc. The counts obtained from the spoons and the rims of cups ranged below 50. In one case only did the count exceed 500. These figures offer a striking contrast to those obtained from hand washing tests.

Tests on Mechanical Washer.—Series of plates similar to those prepared for testing hand washing, were passed through a mechanical washer. The results can be briefly stated: The test organism (B. pyocyaneous) could not be recovered from any of the dishes. When bottles were used in place of dishes, however, the organisms could be obtained from the bottom of the bottles in greatly diminished numbers in only three cases out of twenty. No doubt, the bacteria were protected from the water by air pockets.

Since infected material from the mouth of one person would hardly be transferred to the mouth of another from the bottom of deep receptacles (*e. g.* cups), we believe the occasional recovery of a small percentage of the organisms from the bottom of deep receptacles to be no objection to the general application of mechanical apparatus for dishwashing. The knives, forks and spoons tested, were either sterile or gave very low counts.

The time of exposure and the temperature of the water were sufficient to kill all non-spore-bearing organisms.

Summary.

Hand Washing. *Inspection.*—1. The glasses in restaurants and confectionery stores are merely rinsed off and therefore not properly cleansed. Paper cups should be used unless the glasses can be washed with soap in hot water. The spoons should be similarly treated or scalded.

2. The amount of care exercised to obtain clean dishes fluctuates greatly; dirty dishwater and towels are used in many places, and soiled and greasy dishes served to patrons. Flies were observed on the empty dishes even after the dishes had been washed. Flies were also seen in contact with the dish-towels.

Bacterial Data.—1. The temperature of the dishwater was not sufficiently high to effect bacterial reduction, the cleansing of dishes resulting largely from the deturgent action of soap.

2. Dishes and dishwater frequently gave high bacterial counts.

3. Artificially infected dishes,

washed in a restaurant were cleansed, largely as a result of the deturgent action of soap combined with the vigorous rubbing with a dishcloth. The bacterial reduction exceeded 99 per cent.

The hand washing of dishes, while capable of producing excellent results, is too often carelessly performed.

MECHANICAL WASHING. *Inspection.*—1. Dishes washed in mechanical apparatus have a clean, glistening appearance.

2. No hand drying is necessary.

3. It is a labor-saving device.

Bacterial Data.—1. Except when bacteria are in the bottom of bottles or deep containers, and protected from the boiling water by air pockets, the dishes are nearly always sterilized.

2. Test on dishwater and counts from swab washings from dishes indicated that the temperature of the water, and the time of exposure were sufficient to produce nearly sterilized dishes.

CONCLUSION.*

In view of the carelessness in washing eating utensils in many of the poorer class of restaurants and confectionery stores and in view of the possible transmission of disease from this source, and furthermore, because of the desirability of producing clean and glistening dishes, we recommend an ordinance requiring the subjecting of all eating utensils in public places to a temperature exceeding 80° C. for one minute before permitting the serving of such utensils to a second person.

*Since writing this paper a similar conclusion has been reached by Dr. H. N. Cole (*Jour. A. M. A.* Vol. XLVII, No. 25, p. 1805) as a result of a study of the etiology of a number of cases of extra genital chancres. Doctor Cole writes: "There should be stringent laws enforced by careful inspection, requiring the placing of all dishes, glassware and silverware in boiling water for the space of five minutes, even if the microscopic dust be not removed. This would effectively kill all organisms and fully protect us."

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The Physician and the Food Supply.—An editorial in the June, 1917, issue of the *Southern Medical Journal* discusses the physician's rôle in handling this important war problem:

The principal danger lies in the meat shortage. The Department of Agriculture announces that there is available at this time 100,000,000 pounds less meat than a year ago. The wheat, corn, and sugar crops, to a less extent, are predicted to yield much less than last year.

We are informed that the average man would be more efficient and that he would live longer if he ate less of meat, flour bread and sweets.

It is believed that the medical profession should be organized in a campaign of education that would give every person in the nation accurate information as to just how much he should eat of the different kinds of foods. The people of the United States should be taught that it is not only their patriotic duty to eat less, but that they will be healthier and more efficient if they will restrict their diet. Obviously this does not apply to persons who are under-nourished, but such an educational campaign would at the same time tend to correct this condition by instructing the people in the proper amounts of proteins, carbohydrates and fats that should be eaten.

The article concludes that by such action the physicians will have a wonderful part in conserving the present food supply; and in the years to come we may expect to see a reduction in the mortality from nephritis, heart and arterial diseases that have been so rapidly increasing during the last thirty years.

THE ENFORCEMENT OF REGISTRATION OF BIRTHS AND DEATHS IN METROPOLITAN AREAS—HISTORY, METHODS, RESULTS AND CHECKS.

WM. H. GUILFOY, M. D.
Director of Records, New York City Department of Health.

Read before the Section on Vital Statistics of the American Public Health Association, Cincinnati, Ohio, October 24, 1916.

IN LOOKING back at the experience of a few of the large cities of the United States as to the registration of births and deaths, there stands out prominently the fact that the medical man has been no better in his observance of the laws than the ordinary common garden variety of man, and it was and is the fact today that if you spare the rod you will spoil the child's registration of its birth and that a rod in pickle must ever be ready to punish the medical attendant who fails to do his duty by his patient and her offspring and by the community.

The four cities of Boston, Providence, Philadelphia and New York may be taken to illustrate the title.

Of the four, Boston seems in the past to have more consistently enforced the law as to registration than any of the other cities. The volumes in the city registrar's office testify to the fact that, as early as 1630, births and deaths were entered therein and that a continuous file has been kept to date; of course the completeness of the registration in these early days is open to grave doubt. Providence began to register deaths about the year 1840 and births about the year 1855. Philadelphia possessed registration laws as early as 1818 but apparently there was only a lax enforcement thereof and in 1860 the health officer congratulated the city on the passage of a new registration law which was to be enforced strictly with the end in view of at last obtaining a fairly complete compliance with the act.

The best criterion of the comparative standing of the four cities that I could make was to calculate the birth-rates for the year 1855 for the cities of Boston, Providence and New York and for the year 1861 for Philadelphia.

The rate for Boston was 37 per 1,000, Providence 34, New York 22 and Philadelphia 30, so that, assuming the age constitution and fecundity of the population of the cities to be approximately the same, Boston would carry off the palm for the most complete registration with Providence, Philadelphia and New York in the order named.

Undoubtedly within the last half century there has been a complete compliance in the cities named with the laws relative to filing of certificates of deaths. The checks placed upon disposal of the remains of deceased persons without the issuance of a permit consist chiefly in forbidding carriers to transport remains, cemetery keepers to bury remains or

crematory superintendents to burn remains unless a permit accompanies the body in each and every instance. Persons in charge of cemeteries and crematories are also compelled to return permits to the official who issued them in order that they may be compared with the certificates of death on file.

The complete registration of deaths was not attained in the city of New York until March of the year 1866, in which year when the Board of Health was organized. Previous to this date, the official charged with the enforcement of the law was the city inspector under the control of the board of aldermen, who had charge of what was called the Bureau of City Inspection, whose duties consisted not only in enforcement of the law relative to filing of death and birth certificates, but also in carrying out the ordinances of the board of aldermen appertaining to nuisances of all descriptions, such as bone boiling, street cleaning, piggeries, night soil, slaughter houses, etc.

It is safe to assume that a system then in use which allowed the undertakers of the city to possess and to issue burial permits upon certificates of death given to them by the physicians in last attendance upon the deceased was not likely to result in complete registration at the office of the city inspector. Undertakers would misplace, lose and forget to file the certificates entrusted to their care, so that the death-rates based upon these inadequate returns were undoubtedly erroneous and failed to reflect accurately the mortality of the years previous to 1866.

With the organization of a board of health clothed with autocratic powers in matters pertaining to health and the consequent operation of a code of sanitary regulations, the complete registrations of all deaths occurring in the city was obtained by the forbidding of the disposal of the remains of human beings, without a permit issued therefor by the Department of Health. The records of deaths from 1804 to 1865 inscribed in large towns came into the possession of the registrar of the Department and though admittedly incomplete are still treasured as evidence of the status of medical science in those early days. Page after page of these volumes give mute testimony of the unscientific terms used, such as hives, flux, cramps, debility and weakness.

The very earliest record of deaths is a list of names of persons who died from yellow fever in the year 1789, one of the names having as an addendum "this girl refused to take her medicines." Another early record gives an account of the death of Alexander Hamilton as a result of the duel with Aaron Burr.

Registration of Births in New York City.

The first law bearing upon this important phase of public health service was passed by the state legislature in 1847, but curiously enough carried no penalty for violation of its letter and spirit, with the consequence that during the years 1847 and 1848 only a few hundred births were recorded. During the following years, no attempt at all was made either to amend the law by

providing for the punishment of offenders or to enforce the existing inadequate statute, so that few births were registered until the year 1853 when a penalty was provided and from July 1, 1853, births were registered but at no time until recent years was the law consistently and vigorously enforced. It is true that sporadic attempts were made by well-meaning officials to instil into the minds and memories of the physicians and midwives the necessity of compliance with the statute but these attempts were short-lived and nugatory in results.

The best evidence that can be produced as to the incompleteness of our birth records is the inability of the registrar at the present day to furnish to hundreds, yes, even thousands, of applicants transcripts of their birth certificates.

In 1902, a determined effort was made to punish a physician for failure to file a certificate of birth. The lower court decided that the physician in question complied with law as he swore that he had mailed the certificate though his recollection of the circumstances surrounding the mailing of the certificate was decidedly hazy. The case was appealed and by a vote of three to two the Appellate Division of the Supreme Court upheld the decision of the lower court. In 1903 the law was amended compelling the physician or midwife to *file* a certificate of birth, the law before amendment reading that the medical attendant must *report* all births occurring in his or her practice. Then came a change of administration and for six years no physician was prosecuted for violation of the statute.

In 1910, a change again having occurred in administrative circles, steps were immediately taken to discover and punish delinquents. Within two years over two hundred physicians and a dozen midwives were fined from $10 to $100 each. No one escaped unless he or she was able to prove physical or mental infirmity. Not over six pleaded illness as an excuse. Every individual complained about was given an opportunity to present his excuses before prosecution was begun. Some of the excuses offered bordered on the humorous, one physician claimed exemption because he gave the certificate to his wife to mail, another that he never sent in birth certificates as he was never asked to, one that his office boy instead of buying postage stamps and affixing them to the envelopes, bought candy.

The excellent example set by the layman at the head of the department in 1910 to 1913 was followed strictly by the two physicians who have occupied the office in 1914, 1915 and 1916.

Efforts to Discover Examples of Violations.

First: The comparison of the index of deaths of all children under one year of age with the current birth index and that of the previous year. This means is open to all but has the drawback that it uncovers only a small percentage of violations.

Second: The securing of the names, places (street and number) and dates

of birth of all infants under one year of age and the name and address of the attending physician by the nurses in their routine visits to the homes in their districts; the list thus obtained is compared with the birth indices and violations thus discovered. It may be stated in passing that two indices of births are maintained in the office of the registrar, one a name index, the other a house and number index, to make sure that the medical attendant may not have an unjust accusation brought against him; this double index is very necessary as in a city like New York there is such a diversity of nationalities with consequent unspellable names that difficulty is experienced in locating the record by using the name index alone.

Third: In past years recourse was had to paid advertisements of birth and local society items to ascertain if the births stated therein were recorded at the department.

Fourth: Mothers applying for milk at the milk stations bring their babies with them, so that this departmental activity may be utilized to perfect registration.

Checks to Ascertain Proportion of Births Filed.

First: The best check that I know of has been, and is, the comparison of the list of names of children under one year of age as obtained by the nurses of the Department in their routine visits, with the name and the street indexes of births. As a result of a test made one year ago in which over one thousand names of children were used as a basis, the percentage of registration in the various boroughs was as follows: Manhattan, 99.6; Bronx, 100; Brooklyn, 96; Queens, 95; Richmond, 94; City, 98.

Second: One of the assistant registrars started several years ago to keep an account with each physician, showing how many births were filed during the current month, and in the event of absence of reports from any of the physicians, he was queried over the 'phone as to his failure to file the certificates. The consequence was that each physician practicing in that borough became aware that he was being checked up as it were, and soon contracted the habit of strict compliance with the law. This borough showed 100 per cent. registration.

Third: Since January 1, 1916, a third check, though an indirect one, has been put into operation. The number of births reported during 1915 was 141,256, and the question of sending a certificate or statement of birth to the mother was taken up in that year and discussed, but the cost of sending such statement to a large number of parents was so large it was deemed best to postpone the sending of these certificates until January 1, 1916, the present commissioner finding the wherewithal to do it. The receipt of this statement by the parents results in its exhibition to the neighbors, so that in the advent of a baby in the family of the neighbor the certificate of birth issued by the Department of Health is looked for and if not received, inquiry is made at the Department why it was not sent. Since January 1 about a dozen personal inquiries have been made as to why no statement was re-

ceived by the family. In each case, except one which later served as basis for a prosecution, the certificate of birth was on file but by reason of wrong address, the certified statement was not delivered. Apropos of birth statements issued to parents, I desire to call your attention to the artistic certificate issued by the registrar of Spokane, Wash.

PROCEDURES WHICH HAVE HELPED TO ATTAIN AN ALMOST COMPLETE REGISTRATION OF BIRTHS IN NEW YORK CITY.

First: The compulsory presentation of a certificate of birth from the Department of Health before admission into the public schools. This procedure adopted in 1904 has been carried out to the present day with the result that almost all mothers in the city are alive to the necessity of having the baby's birth recorded.

Second: The compulsory furnishing of a certificate of birth from the Department of Health in order to obtain an employment certificate.

Third: The most important factor in obtaining accurate and timely reports of birth is the adoption of a policy of punishing the violator of the law; this policy is strictly adhered to at the present time, and any physician or midwife who violates the law realizes that no influence, political, social, medical or otherwise will prevent the imposition of a fine for his or her delinquency.

The law governing these cases makes it a misdemeanor to fail to file a certificate of birth within ten days. At no time has the Department of Health encouraged the institution of criminal proceedings; it is found that the beginning of civil action brings home to the offender the fact that the Department means business; he or she thereupon calls at the Department and for a first offence is allowed to confess judgment and pay a penalty of $10; a second offence calls for a heavier fine of about $25, and a third offence—only one in six years, calls for a fine of from $50 to $100.

My advice to registrars who fail to secure approximately complete registration is "Go thou and do likewise."

THE USE OF VITAL STATISTICS IN EPIDEMIOLOGICAL STUDIES.

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Epidemiologist, United States Public Health Service.

Read at the meeting of the Section on Vital Statistics, American Public Health Association, October 24, 1916, Cincinnati, Ohio.

THE basis of all epidemiological observations is essentially statistical. Observations which are not capable of quantitative expression are seldom worthy of consideration in a serious epidemiological study. The success or failure of any such study rests, usually, only upon the accuracy and completeness of the observations on which it is based. The development of the science of epidemiology, therefore, is dependent upon the accumulation of information regarding the prevalence of disease, which is at once accurate, complete and easily available

Epidemiological observations may be broadly divided into two classes: first, intensive observations, made upon relatively small numbers of cases but comprising many items of information, collected with great precision and accuracy from the original source of the data; and, second, extensive observations, usually comprising only a few items of information regarding each case, but made upon large numbers of cases, and applicable to large units of population.

Intensive studies are usually made under the direct supervision of the investigator, and the information is usually collected directly from the patient and his immediate environment. With such information, the registration official has usually but little to do.

For extensive information, on the other hand, the epidemiologist must usually depend upon the results of the labors of the organized health agencies of the country. Voluntary reports, answers to questionnaires and other forms of report collected privately are seldom sufficiently accurate or extensive to be of real value. The true basis of all extensive epidemiological studies is to be found in the mortality and morbidity statistics collected by the registration officials of the United States. Since the original sources of this information are scattered over the various states and comprise millions of individual items, the available sources of information for such studies are in actual practice limited to the published reports of the various cities and states, and to the reports of the United States Census.

Up to comparatively recent years, the volume of this material was very limited, and the area covered exceedingly small. The rapidly extending area in which death registration is accepted by the Census and the increasing interest in the registration of morbidity, promise much for the future. In this connection the sanitary world is under profound obligations to the founder and first chairman of

this Section, to whose monumental labors practically all the progress of the United States in vital statistics is due.

The time is apparently not far distant when the vital statistics of the United States will be sufficiently complete, extensive and accurate for all practical purposes. There remains for discussion only the methods of tabulation and presentation of the demographic material which is being accumulated so rapidly.

The value of demographic material for epidemiological studies varies almost directly with the minuteness with which the figures are subdivided and cross-tabulated according to the three primary tabulations of location, chronology and age. These three facts regarding each case or death are of primary importance. The secondary facts of color, sex, nativity and occupation are occasionally of value, but for most statistical studies only the three primary facts are necessary.

A statement of the total number of deaths from typhoid fever in the United States, for example, for a period of ten years is of little value statistically. A statement by single years allows comparisons between years and shows the general trend of the disease. A statement by states by years is of greater value still, while a statement by states by months shows certain important facts regarding the seasonal differences in typhoid prevalence. Further subdivided by cities and counties, and stated by months, the information attains still greater value. The age distribution of typhoid deaths for the United States, likewise is of but little interest. By states the information is valuable, by cities and counties still more so.

The information desired by the epidemiologist, therefore, in reference to typhoid fever, would be a tabulation, showing for each significant geographic subdivision, the number of cases and deaths from typhoid fever, arranged by months, and by age periods. Similar tabulations for the other diseases of public health importance would yield a great mine of information regarding facts at which we at present dimly guess.

Geographic subdivisions used in such tabulations should, of course, be coincident with areas for which population and age distribution statistics are available. In this connection it seems very desirable that there be some change in statistical practice in certain states in reference to areas included in population units. In certain states, particularly in New England, the town, for which population statistics are available, consists of a relatively small area of urban territory and a large surrounding territory in which the population lives under rural conditions. This is not a satisfactory unit for any sanitary statistical study, since the two sets of conditions included in the unit are not comparable, and since the city, as it really exists, cannot be separated either in area, population, or morbidity and mortality.

A further reform which seems desirable, is the preparation and publication of intercensal estimates of population by age groups. At present we have, for the census year, figures for total population, and mortality at all

ages, and in addition we have the age distribution of the population and of the mortality. For intercensal years, however, we have estimates of total population, and deaths at all ages and by age periods. We do not have, however, any official estimates of population by age periods, for use in computing rates.

The work of this section in the standardization of tabulations and the establishment of uniform age periods for statistical purposes has been of great value. For certain statistical purposes, however, the publication of mortality by single years of life would be of great value, in permitting comparison with other reports in which age periods different from those of the standard practice have been used. This may not be possible, however, for all reports, but should be kept in mind in the publication of detailed studies of particular interest.

The publication of vital statistics in such detail is, of course, an expensive proposition, but when one considers the enormous cost of collecting such statistics, the additional outlay necessary to properly tabulate and publish them is not a very large item. Vital statistics have sufficient legal and general importance to justify their collection and registration, but their value to the sanitarian is dependent altogether on the way in which they are tabulated and presented

A study of published reports of mortality and morbidity would seem to indicate that the editors of most reports either had but hazy ideas as to the statistical uses of such reports, or did not think it worth while to take such uses into account. The total number of deaths from any given cause of death is frequently subdivided according to geographical divisions, and frequently according to color, sex and age, but only infrequently according to months, and seldom or never are important causes cross-indexed by months, age and civil divisions.

It must be borne in mind, of course, that the smaller the civil division to which statistics relate, the greater the possibilities for subdivision. There is no reason why in a city or county report, a single table with causes of death in the vertical column, months, color, sex, and age periods in the horizontal columns, should not show practically everything needed for the epidemiologist.

In state reports, the difficulty of presenting the figures in sufficient detail increases with the number of civil divisions included. Either a separate table for each civil division reported, prepared as described for the cities, must be presented, or the important diseases must be treated in separate tables. The Census report in such a case would be a combination of state reports, together with additional summary tables for the registration area as a whole.

Whatever the solution of the difficulty, some change in present methods of presentation is imperatively necessary. To study the prevalence of typhoid fever in the cities of New England, for example, necessitates the compilation of tables showing the number of deaths, by months and age periods, for the several cities. At present this can be obtained only by a

visit to each state capitol, a search of the original records, and in many cases the review and classification of hundreds of thousands of certificates. The labor involved makes the compilation of such a table, showing only the simplest and most elementary facts regarding the prevalence of typhoid in the oldest of the registration states, almost impossible.

An additional difficulty confronting the epidemiologist seeking accurate statistical material is the marked discrepancies existing between local and state reports on the one hand and state and federal reports on the other. It would seem that with the methods of classification at present in use, discrepancies should be rare, and that some system of exchanging classifications and correcting differences could be devised.

In conclusion, therefore, it may be said that from the standpoint of the epidemiologist, the amount of statistical material available in this country and its accuracy and completeness are matters for congratulation. The form in which this material is published, however, is far from satisfactory, and it is to be hoped that the same energy which has resulted in so great an expansion of registration in America, will be turned to the proper tabulation and publication for the available material, so that all that we have may be readily accessible, and that the cause of sanitation may be advanced by the joint labors of the registrar and the epidemiologist.

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Climate and Tuberculosis.—"The consumptive who contemplates going to a distance in search of a favorable climate must consider the advantages and disadvantages, how much good the better climate will do, and what he forfeits in making the change—whether the gains compensate for the losses."

Thus writes John W. Trask, assistant surgeon general, United States Public Health Service, in an article appearing in the *Journal of the Outdoor Life* for June, 1917.

Doctor Trask considers that the conditions which make a climate good or bad are: The temperature and humidity of the air, the frequency and velocity of winds, and the presence or absence of dust and smoke.

Too many times, other things of equal or greater importance are sacrificed to the matter of climate.

The summary of this excellent article is quoted in full.

"A favorable climate for a consumptive is one that is not too warm. A moderately cool atmosphere is invigorating, while a too warm one is depressing. Very cold weather, on the other hand, makes the living of an outdoor life more difficult and less attractive. Moderately cool atmospheric conditions are those to be sought.

"No locality has a climate that is favorable all the year, and most localities in the United States have favorable climates for a considerable portion of the year if one will only take advantage of them.

"In one's quest for a favorable climate one must not forfeit suitable food, rest and peace of mind, or gain a more favorable atmosphere in which to live at the price of homesickness and worry.

"The consumptive can usually obtain the most favorable conditions for recovery, including an outdoor life, suitable food, rest, medical attention, and nursing, at or near his home. A suitable atmosphere or climate can be obtained during many hours of the day by avoiding overheated or crowded rooms and by sleeping on a porch in all ordinary weather and in a room with open windows when it is very cold or stormy.

"Leaving home, except to go to a sanatorium, is fraught with much danger, unless one is financially able to meet all possible demands, and it should be most carefully considered even then."

THE MODERN HYGIENE OF TYPHUS FEVER—ITS APPLICATION AT THE PORT OF NEW YORK.

JOHN R. HICKS, M. D.,
Chief Medical Officer, Department of the Health Officer of the Port of New York.

SINCE Hippocrates used the Greek word "Typhus" which signifies "smoke" and intended its use to signify stupor, there has been a great change in the hygiene of this disease. In the eighteenth century de Sauvages gave it the name of putrid or pestilential fever; other names were hospital fever, ship fever, spotted fever, jail fever, camp fever, and exanthematic fever. This has been one of the great epidemic diseases of the world; but thanks to modern hygiene, the blotted pages which tell of its ravages upon mankind during war, pestilence and famine are a closed book.

Typhus fever may be defined as an acute infectious disease of known origin, characterized by sudden onset, maculohemorrhagic rash with or without marked nervous manifestations, and terminating by crisis about the end of the second week. Sporadic forms of this fever occur and, until recently, often offered great difficulties in diagnosis, but by recent experiments many obscure cases of fever which were formerly called Brill's disease have been definitely proven to be typhus fever.

By careful experimental study it has been demonstrated that this disease is a typical germ disease and the organism is conveyed by the bite of lice, hence this disease is associated with filth and overcrowding. It is just what one might expect, as it is easier for vermin to travel short distances than long ones. Again it was looked upon as a most contagious disease and those in attendance were formerly invariably attacked. In a period of about twenty-four years in Ireland among 1,230 physicians attached to institutions, 550 died of this disease. The observations of Littlejohn are of interest in this connection. He noticed that comparatively close association with the patient was necessary and during a recent outbreak in large overcrowded tenements where many families occupied different rooms in the same flat, the fever did not spread from one family to another unless individuals were in the habit of going into each other's rooms; persons who were not on intimate terms with the infected ones (although these rooms opened on the same narrow, badly-ventilated landing and the occupants probably passed each other daily) escaped infection.

In Edinburgh it was customary to nurse patients with typhus and typhoid fever in the same ward; the typhus patients were put in one end of the ward near the fireplace so that the lice could be kept warm and would stay by their fireside, while the typhoid patients were put on the cold side near the door where cold drafts

would prevent the migration of the pediculicapitis, pubis, and vestimenti.

I am inclined to reverse the general medical belief that males and females are affected equally. In our twenty cases all were males, but the number of cases were too few to arrive at any definite statistical conclusions. In regard to age: in our list of over 3,000 contacts there were 200 children under twelve years of age and none had the disease or were taken with it after arrival. Nor were any of the children sick in any other way, so there could be no mistake as to diagnosis. If this is true it would be interesting to know why children are not susceptible and what is the nature of their antigens. If one could see the large number of pediculi in the heads of children in quarantine, one could not help believing there must be some immunity of one kind or another. Now that the germ of the disease has most probably been discovered these points should soon be decided. From January 7, 1914, to June 19, 1914, the Health Officer's Department treated twenty true cases of typhus fever and kept under observation for a period of twelve to fourteen days approximately 3,000 contact detentions, including 200 children under twelve years of age. Of these, two cases developed within two or three days after the arrival at the detention hospital from the infected ship. As soon as the diagnosis was made these cases were sent to the isolation hospital for care and treatment, while the detentions were kept for the full period of incubation without development of any other cases. Out of conditions of filth and ignorance comes knowledge and simplicity of hygienic methods which when properly applied cost little or nothing and are absolutely efficient against this pestilential disease.

Practical experiment has demonstrated that petroleum oil (ordinary "kerosene" such as is used for illuminating purposes) is the cheapest vermicide that can be used as well as one of the most efficient, and I believe too little attention has been paid to it as a germicide. If one will take a house-fly (Musca domestica) or other form of fly, place him between two layers of absorbent cotton, and drop a drop of petroleum (refined) on the insect he will die almost instantly. The same is true of all forms of the pulex, pediculus, ascarus, cimex lectularius or other parasitic insect.

Based upon this fact, a system of personal hygiene for all typhus contact immigrants, was introduced which, I believe, is of interest and worth describing in detail. Sulphur was found to be too superficial in its effects even if burned in the proportion of eight pounds to the 1,000 cubic feet; owing to the large amount of material to be disinfected steam is and must be used wherever possible. We have tried numerous experiments to determine the efficiency of steam under pressure and the relative efficiency of SO_2 as vermin destroyers. Pediculi were placed in the sleeve of an old shirt and wrapped with three double blankets, then tied with twine into a tight bundle and subjected to live steam at fifteen to eighteen pounds pressure

THE PRESENT STATUS OF AND NECESSITY FOR MOUTH HYGIENE.

SIDNEY J. RAUH, D. D. S.,
Chairman Oral Hygiene Committee, Ohio State Dental Society.

[Read before the General Sessions, American Public Health Association, Cincinnati, Ohio, October 27, 1916.]

AT THE time of writing, so far as the essayist could obtain information, this will be the only paper on mouth hygiene delivered before the present session of the American Health Association. This is not in accordance with the importance of the subject, and it is manifestly impossible to embody in one discussion the many sides of this topic. The plea is here made that at your next conference more time and attention be devoted to the educational propaganda of oral hygiene. It is just as necessary to the physician, dentist, public health worker and bacteriologist as to the layman.

In a recent issue of *The Outlook* there appeared an article, "Diseased Teeth and Bad Health," by Matthias Nicoll, Jr., M. D., New York State Department of Health, from which I quote: "Happily, the medical profession is at last coming to realize that the field of dentistry is not isolated and independent but touches at many points the field of general medicine and surgery. It has been found imperative that physicians and surgeons possess at least a theoretical knowledge of disease-breeding conditions met with in the teeth and jaws, but it is even more important for the dentist to appreciate the close relationship between his profession and that of the physician, surgeon, bacteriologist, chemist and public health official."

When articles of this sort are presented to the layman, it is high time that we, as professional men, realize the importance of the subject. Why, at so late a date, it is still necessary to make appeals for the proper care of the mouth and teeth is almost beyond comprehension. Would that it were possible to bring to the attention of every educator the need for a dental inspection in any school and more particularly in a poor district. For even all educators are not alive to the connection between mouth-health and mental efficiency. Several years since, an "experimental dental class" was formed in Cincinnati. Two classes of the same grade in the same school were selected—one known as the "experimental" and the other as the "control." A series of tests (physical, psychological, as to the home environment, social status, etc.) was instituted for both classes. Then the mouths of the children composing the experimental class were put in first-class condition and the mouth hygiene of the class was constantly supervised. At the end of the school term the tests before mentioned were repeated. The results are on record. Suffice it to say here that the average of the experi-

for varying lengths of time. The vermin were found destroyed in every case after thirty minutes' exposure but were not killed after twenty minutes, so considering the varied number and kinds of bundles of goods to be disinfected, a time limit of forty minutes exposure to steam under fifteen pounds pressure was adopted as a standard. In regard to sulphur dioxid a record of one experiment will be sufficient. After burning over seventy pounds of sulphur in 8,000 cubic feet of air space for eighteen hours, live pediculi were seen crawling on the white colors exposed to infection. This having been observed we took a number of woolen garments and placed pediculi in the folds and covered them with one layer of cloth, then put them in a small chamber of about 200 cubic feet and burned nine pounds of sulphur for fifteen hours, at the end of which the pediculi were still alive.

Consequently for the prevention of the spread of typhus fever the following procedure was put into effect and has proved most satisfactory. On arrival of the typhus contacts they are made to march in line to the concrete court and each one is given an open mesh bag (cotton, 24″ x 30″) into which all cloths, cotton and woolen goods of all kinds from their valises or trunks are put, and their valises, trunks and other articles, shoes, hats, etc., are transferred to a large sulphur chamber to be disinfected over night with eight pounds of sulphur to 1,000 cubic feet. The mesh bag and its contents are then taken by the immigrants to a large room. Here immigrants are lined up and undressed and their clothes are put in these bags. A metal tag with the number is pinned on the bag and a rubber tag number is put around the neck of each patient corresponding to the bag tag. His money and all other valuables are taken away and dipped in a solution of fifty per cent. alcohol and put in an envelope with his number written plainly on it. After being stripped and made to pass from this large room through a passage into the shower-bath-room where they are given a preliminary bath (using soft soap and hot water), they are given a petroleum bath, about six ounces being used to the patient to destroy all vermin. After this bath they are dried with a towel, given pajamas and slippers and fed. Clothes are disinfected by steam under pressure, dried "in vacuo" and returned to the owner, after which the latter are removed to a clean dormitory.

A clean dormitory is one that has been swept, each bed and floor washed with 1-20 carbolic or petroleum. While peculiar conditions governing our service keep us from employing petroleum for the purpose of washing down walls and cleaning floors, I believe it is a preferable method. By the method I have outlined more than one hundred persons an hour can be sanitated. It is plain that this method is efficacious as in the great number of detentions held at quarantine, there was not a single secondary case developed after the expiration of the period of incubation, dating that period from the time of sanitation.

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mental class was 85+ per cent. and that of the control 69+ per cent. These figures were provided by the school principal.

It has been frequently stated that 90 per cent. of the school children of the United States require dental attention. Do you realize what this means? Insufficient mastication, the swallowing of pus and other germs, filth that a street-cleaning department would shy at, toothaches, to keep the child awake at night and to interfere with his regular duties in the daytime. In short, unclean mouths induce every condition that the trained worker of today is trying to prevent or to combat.

There are three great social diseases: Tuberculosis, sexual diseases and decay of the teeth. In each of these, preventive measures are the only really effective ones. What does it matter if you can induce the tuberculosis patient to sleep outside, take proper food and be cured if the environment in which he lives remains the same and he returns to his former occupation and habits? So with this movement. Parents and children must be instructed through the medium of lectures, demonstrations, exhibits and all the means which it is scarcely necessary to enumerate before a gathering of this type. The follow-up work must be immediate and thorough. Last year in Cincinnati a mouth hygiene educational week was attempted. Lectures were delivered in every school in the city, public meetings were held before improvement societies, parents' clubs and mothers' clubs; a special teachers' meeting was arranged at which prominent speakers appeared. At the end of the campaign it was stated that practically every child in the city owned a toothbrush. But what is the state of affairs today? The follow-up work was not what it should have been and the "intensive campaign" was blamed where the "follow-up" was really responsible.

Probably at no time since the inception of the oral hygiene movement does there seem more reason for active preventive measures than at present. It has been conclusively shown that local foci of infection produce systemic disturbances which are most difficult and sometimes impossible to eradicate. Under this head may be mentioned various forms of rheumatism, arthritis, heart disease, stomach and intestinal disorders, etc.

Probably the main cause of this local infection is from so-called "dead" (pulpless) teeth. There is no method known to modern dentistry whereby the nerve of a tooth may be extracted, the pulp canal filled in such a manner that infections do not follow, except through a tedious technical procedure which requires a minimum of three hours and the highest of technical skill. Therefore, this condition must be avoided and it can only be done through preventive measures, that is through persistent, sanitary procedure so that the teeth will not decay. Where they do, they must be attended to before the cavities are so deep that it becomes necessary to "treat" the tooth.

Authorities, such as Hunter of England, Rosenau, Billings, Hartsel, Price

and others too numerous to mention have called attention to this fact and it is high time that the hygienist should sit up and take notice.

The congestion of population in cities is more and more making it necessary that special sanitary precautions be pursued to prevent conditions which are so difficult that our corrective work is growing beyond us. All the arguments that are used to show the necessity for proper housing conditions and proper living to prevent such diseases as tuberculosis apply to our work. It is no uncommon thing in this day to have a special dental department in hospitals, which is expensive and is always more or less inadequate. If our health authorities and social institutions would coöperate in this preventive idea, we might ward off an ever increasing expense.

Not only, however, does this situation exist in the large communities, but it has reached the farm, and the educational propaganda must be extended into the rural communities at the same time. It is a well-known fact that many an immigrant lands upon the shores of the "promised land" with an excellent masticating apparatus which is changed to a disease-breeding bacteria-propagating plant inside of two years. Why can we not reach this element before it is too late? We must teach them to eat the proper foods, exercise and stimulate the tissues of the mouth and teeth so that the new citizens shall become useful and independent producers

What is the position of the oral hygiene movement in the United States today? Unfortunately I cannot give you all the information as to what the various communities are doing but the larger efforts can be mentioned. We will divide them into the following headings:

1. Special institutions for the treatment of children's mouths.
2. School clinics.
3. Educational propaganda.
4. Clinics in hospitals.
5. Clinics in commercial plants.

1. Special Institutions for the Treatmen of Children's Mouths.—The Forsyth Dental Infirmary, of Boston, is the only one of this group which is in operation. This institution has an endowment of two million dollars and a magnificent plant situated on the Fenway in Boston. They have facilities for handling about 400 children per day. Operating rooms are provided for nose and throat diseases, a special school for the teaching of orthodonthia (straightening of the teeth), a research department, halls for lecture purposes, etc.

In Rochester, N Y., Mr. Eastman, of Kodak fame, has given about $1,500,000 for an institution somewhat along the same lines with this exception—he stipulates that the city of Rochester provide $25,000 per year for five years to do the work in the schools and they are also providing for clinics outside of the main institution. There is more or less difference of opinion as to the relative values of centralized clinics as opposed to the clinic in the public school. Your essayist inclines towards the latter, for, as these institutions attempt to reach the very poor, it

would seem that the closer they are to the homes of the people the more likely are they to be used, to say nothing of the savings of carfare and time to the patients. Besides, there is the moral effect which the institution close to home supplies. Rochester, N. Y., has probably the oldest oral hygiene movement in the United States and it is most gratifying that the efforts of those pioneers have been recognized in so substantial a manner.

2. School Clinics.—In almost every instance school clinics have been instituted through volunteer effort on the part of dental organizations or small groups of dentists. After the clinics' efficiency has been demonstrated, the city boards of health have taken them over. Detroit has made most progress in this direction, its appropriation now being $20,000 per year. Cincinnati, Cleveland, Philadelphia, New York, Toledo, etc., have effective organizations.

While only a few of the most prominent efforts have been mentioned, it is gratifying to report that in hundreds of small communities clinics are being operated through volunteer service; also that in many of the larger centers, either through professional or volunteer service, a start has been made in this direction.

The so-called prophylaxis method has been advocated and is being employed particularly in Bridgeport, Conn. After they have had one year's training, school nurses clean the mouths of all the school children. This is done at regular intervals and it is claimed by the advocates of this system that more can be accomplished in this manner through preventive, rather than by remedial measures.

3. Educational Propaganda.—Cincinnati's work may be taken as typical, but it should be said here and now that not one of the large communities is providing sufficient treatment for its citizens. With us, the Board of Health is paying the salaries of most of the employees What the city cannot afford to do at the present time is being done by a social agency maintained by the dental organization. The clinics are located in schools situated in those districts from which most of the patients are drawn. Dental inspections, an important part of the work, are made by volunteers under an effective system developed in the eight years of the endeavor. Lectures in the public schools are delivered by these same volunteers and a constant propaganda is maintained through their efforts. As a result of this propaganda, several correctional institutions are supplying dental service to their inmates.

4. Clinics in Hospitals.—The advanced medical man has recognized that the modern hospital is not complete without its dental department and it is no uncommon occurrence to find a well-equipped dental clinic there. Our new City Hospital has made excellent provision for handling this end of the work. Our Tuberculosis Sanatorium has one dentist in regular attendance and is requesting more service. So it is wherever you turn. Nor is it surprising this should be so. Once the work is started—once it is given a fair chance to show what can

be accomplished through its ministrations—the need for continuing it is seen. In some hospitals clinics are maintained for out-patients as well as for those under treatment in the wards. This is very necessary; for most of the free dental work, so far, has been done for the children and the adult without means has been left to shift for himself. The consequence is either that he neglects himself or that he falls to the tender mercies of the advertiser. The latter is usually unscrupulous and his work can be depended on to match his seemingly low prices.

5. Clinics in Commercial Plants.—Probably one of the most encouraging results of our propaganda has been the recognition accorded by the business man. He is beginning to see that a dental clinic in his plant is an investment, not a liability. The Metropolitan Life Insurance Company of New York, the Akron Rubber Company, the Colgate Company, The Cincinnati Milling Machine Company and others are now operating their own clinics. The statistics when compiled are likely to prove interesting reading. They will show the condition existing among the employees at the time of the opening of the clinic and to what extent their efficiency may be augmented through proper dental interference.

In the Cincinnati Milling Machine Company the examination of 600 employees showed the following:

350 had never consulted a dentist.
216 had not consulted in over a year.
47 had consulted within six months.
86 had consulted within three months.

The last figures have probably been induced through examination. Approximately one half of the men had insanitary mouths; in one fourth of the cases conditions were fair, in one fourth good. The masticating efficiency of one fourth was bad. One thousand four hundred and twenty teeth required filling—an average of over two and one half to an individual. Pus was present in more than one half of the mouths, from one cause or another. This is a startling state of affairs. Does it not stand to reason that after these men are relieved from pain and given a chance to chew their food so that normal digestion may follow, their labor will be better in quality and greater in quantity?

Experiments have been made for the purpose of proving that delinquency, retardedness, feeble-mindedness, etc., are concomitant with insanitary mouth conditions. Operations for the removal of tonsils and adenoids are not as effective if the mouth has not first been put in a sanitary condition. We require the thorough coöperation of every agency concerned in the health movement if we are to arrive at the point where we are no longer compelled to admit that "90 per cent. of the school children of the United States require dental interference." If 90 per cent. of the children are in this condition, how about the adults? At an examination held at the Cincinnati Tuberculosis Hospital several years ago the conditions discovered were positively deplorable. Those inmates whose mouths were not absolutely filthy or where pus was not

MONTHLY SCHEDULE FOR HEALTH OFFICERS.

HAROLD B. WOOD, M. D., DR. P. H.,

Assistant State Commissioner of Health, Charleston, W. Va.

Presented before the Section on Health Administration, American Public Health Association, Cincinnati, Ohio, October 25, 1916.

THE work of a health officer is either routine, emergency, seasonal or opportune. The division into these classes is evident. The seasonal activities are those which adapt themselves to previous planning and these, except in the presence of an epidemic, constitute a large proportion of his work. They are the factors of prevention, not those of control.

Since it is human nature not to anticipate dangers, there is a frequent tendency for district health officers, and those of small towns, to await developments rather than to institute active sanitary improvements when most needed. The too-frequent abiding of time is due to the lack of study of future calendar months, their needs and opportunities. Fly and mosquito extermination, infant welfare work, disease control, and all the other sanitation campaigns should begin when most timely and effective, without waiting until the enemy has made a marked advance in his campaign. Some medical practitioners and laymen serving as health officers do not realize the need of instituting sanitary activities at definite times. They do not commence to compile their reports until obliged to do so. For this reason it is an advantage to present to the country health officers and to the sanitary authorities of the smaller towns a seasonal list of public health activities and opportunities.

Where county or district health officers are furnished with a monthly schedule of seasonal health activities, the state department has better information of what particular work may be engaging the extra time of the local men in the field. If the health officers are working along corresponding lines, their work and results are more comparable.

It is for these purposes as a means to have the various enumerated activities begun at the designated times that the following seasonal schedule is presented, in the belief that at these months is the work most needed, most economical, most beneficial and most opportune.

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January—Compile and publish annual report. Make physical examinations of school children.

February—Track up disease contacts. Plan and execute educational campaign.

March—Control diseases. Examine school children.

April—Institute semi-annual clean-up. Clean privy vaults. Begin dairy farm inspection. Begin movement to improve sewage and garbage disposal methods. Institute fly campaign; destroy breeding places, order manure boxes.

May—Inspect alleys and lots, garbage and rubbish piles. Investigate sources of water supplies. Inspect rural schools for sanitation. Inspect creameries, cheese factories, slaughter houses. Follow up discharged tuberculosis

present, had insufficient masticating ability. Over half the patients admitted that they never used a toothbrush!

For many years there was a controversy between the dental and the medical professions as to the status of the former. Fortunately, the mother-profession has awakened to the importance of our movement and is according to us the place by her side to which we are entitled. The dentist is coming to be recognized more and more as an essential part of an army's medical corps. Enlisting stations have turned away man after man because of the would-be recruit's defective teeth which would render him unfit for the best service and dentists are kept at the front to maintain there men who would otherwise have to be sent behind the lines for relief from dental disorders.

One of the lessons of the great war is the intimate relationship of medicine and dentistry. In the American Ambulance Hospital at Paris a regular corps of dentists is on duty. Among them is a steady supply of American volunteers. Some of the most remarkable surgical work has been developed in that dental infirmary—work which only expert dentists could perform.

Let us open our minds to conditions as they are. Let us all work together to awaken the public from its lethargy. Let us do more preventing; then we shall have less curing to undertake.

A perfectly clean tooth cannot decay. Who will help to show this very simple truth to the world?

Fighting the Venereal Quack.—It has long been recognized that the best way to fight the venereal quack is to take away his advertising. Some years ago *The Chicago Tribune* declared and waged successful war on these gentry.

In a contribution to *Health News* (New York State) for May, 1917, William T. Foster tells of the work of the Oregon Social Hygiene Society during the past five years. Scores of cases of the abuses of the fake "doctors" were called to the attention of selected groups of mothers, teachers, physicians, commercial clubs, etc.

"The culmination of the campaign appears to have been a meeting of the Retail Merchants Association, at which the members were told that it was not good business to pay for honest advertising which had to compete in the daily papers with the dishonest claims of quacks. They applauded vigorously; but they were assured that the newspapers could not hear their applause. They were urged to act at once. Two days later, in February, 1912, every fake doctor advertisement disappeared from two of the leading papers of Portland and soon from all the other papers.

"Public sentiment was ready for a sweeping law. It was passed at the next session of the legislature. Since then it has been unlawful for any person to print or distribute in any manner the kind of advertisements to which we objected."

"The effectiveness of this phase of our program became evident at once. Our field agents, after watching at the doors of medical institutes, reported that their business was rapidly falling off. We soon had the satisfaction of exhibiting photographs of three-fourths of the largest establishments showing "For Rent" signs in the windows. Most of these concerns sought more comfortable and more remunerative existences in other states. From the point of view of these states, this migration will hardly prove a blessing, unless it prompts them all to action. The whole nation should drive this particular tribe of fakers to jail or to honest labor."

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cases. Investigate summer resorts for sanitation and disease carriers.

June—Hold Baby Week; establish baby clinics. Get visiting nurse for infant welfare work. Begin mosquito campaign. Attend annual conference of state health officers.

July—Make rural investigations of typhoid, hookworm disease, trachoma. Inspect summer resorts in operation, picnic grounds and camps. Inspect sanitation of transportation companies.

August—Prepare health exhibit for fairs, schools, etc. Continue July program.

September—Hold health exhibits at county fairs. Collect data on sanitary improvements made at schools, etc. Inspect canning factories. Inspect school children for contagious diseases.

October—Begin examination of school children for physical defects. Institute rigid control over every case of contagious disease. Track up disease contacts, instruct and control them. Institute semi-annual clean-up.

November—Hold public health meeting in county medical society. Investigate water purification and sewage treatment plants. Follow up discharged tuberculosis cases. Develop factory hygiene.

December—Investigate jails, asylums, public buildings and theatres. Check up vital statistics records, births and deaths. Attend meeting of the American Public Health Association.

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STAMMERING IN CONNECTION WITH MILITARY SERVICE.

Ernest Tompkins, M. E.,
Los Angeles, California.

WAR is gradually awakening us from our peaceful commercialism, and we are unearthing evidences of unpreparedness of which we never before had any suspicion. Problems in connection with military and naval service with which European nations have wrestled for years now become problems for us. Men will be called to defend the country and many of them will have to be rejected on account of incapacities, among which stammering is of considerable importance.

According to the best available figures there are approximately 1,000,000 stammerers in the United States. Of course not all of these are of military age—notably the 300,000 in the schools; but of the adults approximately nine-tenths are males, so a considerable number of men otherwise fit for duty will have to be rejected on account of stammering, a number large enough to give the enlistment officers considerable anxiety, if the experience of European nations is a criterion. Doctor Chervin's elaborate examination of French enlistment statistics showed the rejection of seventy-five men out of 10,000 on account of stammering; but that rejection was based principally on the inability of the candidate to ask and give the countersign, a test which allows many stammerers to pass. The uninitiated might think that the reduction in enlistment is represented by those who fail to pass the test; and apparently that is so, for the slight stammerers are mustered in. But the fact is that many of those slight stammerers who enter the service and advance in it, often to high rank, may at any time become absolutely incapacitated by intensification of the disorder. Doctor Chervin cites the case of an officer whose slight stammering had not incapacitated him

until one day when marching his men toward a ditch the idea occurred to him that he would not be able to give the command to halt, and the idea was realized, for he was barely able to stop them at the edge of the ditch by an inarticulate cry. The record does not say whether this officer was incapacitated after that experience, but he probably was; for such an experience so intensifies the trouble that the utterance of any order might be an impossibility. However it was with this officer, it is certainly so in quantities of recorded cases. Rudolf Denhardt cites many cases of officers incapacitated by similar experiences. The loss to the service of a trained officer who has become useful in it is considerable. Yet many such losses must inevitably occur under present conditions. But can anything be done to remedy those conditions? Yes. The entire disorder can be extirpated within a few years. Its existence at the present time is one of the saddest indictments of the human race that history has to record. All this will be evident from consideration of the nature of the disorder.

Why could not the officer call "Halt" to his men? Simply because his fear of inability to issue the order prompted a frightened misdirected effort which blocked his normal speech. If the fear had not arisen in his mind he would have issued the order properly. Some time in his childhood an accident or incident had induced him to make a conscious effort to help his speech; but after speech is acquired it can not be directed consciously, so his effort hindered his speech and planted the fear of speech disability. But that fear was slight and did not induce enough continued interference with his speech to bother him much—a degree of stammering that is sometimes called "sleeping stammering" because it is inactive. Its awakening under circumstances of deep humiliation undoubtedly kept it awake—and very much so—for the rest of the man's life.

This explanation of stammering will undoubtedly be rejected by many authorities. They are not agreed as to what they think stammering is, but they seem to be almost a unit in rejecting what it really is. However, the truth needs only time for justification. Moreover, the extirpation of stammering is entirely independent of what it is. Call it anything you like; the remedy is indisputable, and has been known vaguely for thousands of years. All that is needed is to know it clearly and to apply it.

The remedy is readily deducible by a little analysis of the outgrowth of stammering. For the few who question the outgrowth of stammering it may be said that German statistics show that at least two-thirds of the stammering school girls are free from the trouble in adult life; and scientific considerations, taken in connection with these statistics, indicate that of the girl babies who contract stammering, nine-tenths recover before middle age. Moreover, every community contains several fluent adults who were once stammering boys. Examination shows that these recovered stammerers had done much spontaneous talking. Stammering is intermittent; the stammerer's speech consists of correct talking done spontaneously and incorrect talking done when he is frightened. When he does much spontaneous talking, and finds himself talking freely, the idea of disability fades. The general expression of the remedy is, the prevalence of correct talking over incorrect talking. No other remedy is known. The three-weeks alleged cures are principally temporary uplifts due not to the methods used, for they are generally harmful, but to the calmness and confidence instilled by the environment of the cure, as is demonstrated by the relapses away from the cure.

The time of real correction—the removal of the idea of speech disability by correct talking—is inversely proportional to the rate at which that talking is done; doubling the rate of talking halves the time. The time of recovery is also inversely proportional to the age at which it is begun. At the inception of the disorder it can be stopped in no time; in old age it is generally considered incurable, but that is a mistaken impression due to the fact that the disorder is more tenacious than the application of the remedy. The mother's remedy, prohibition of stammering, is hastened outgrowth. The prohibition of stammering is equivalent to a great increase in the rate of correct talking. This method is wonderfully efficacious in the period between the acquisition of stammering and the beginning of schooling (stammering is generally acquired before schooling begins). The little girl stammerer is generally corrected then; but

the boy stammerer runs out where he is ridiculed instead of corrected, so his chances of recovery are relatively slight. This throws an interesting light on the very existence of stammering; its existence depends on the unkindness of human nature. Why will a stammerer almost go into a convulsion at times to say something? Simply because his experience has taught him that he will be considered queer if he does not talk like other people so he persists in his efforts to talk like them. An enlightened public will remove that impression and show him that he is not expected to say what he fears to say, but may calm himself and speak, or make signs or write or remain silent. Moreover, they should require him not to make any effort in speaking. The disorder is contagious, and it should be suppressed for the protection of non-stammering children, not to mention the recovery of the stammerer himself.

What are we doing to remedy stammering now? We are making it worse. The timid stammering child, which has probably been outgrowing its trouble, is put into the school and subjected to the cruel punishment of the oral recitation, by which his affliction is intensified and confirmed. While we are beginning to train the school boys for the defense of the nation we are coincidently incapacitating a considerable number of them. The reversal of that policy should be as quick as its inconsistency is evident. The oral recitation for stammering children should be at once abolished and stammering should be prohibited on school property. This will gradually eliminate the disorder. Parents may help by relieving the stammering child of required talking and by prohibiting stammering in the home; but even without the aid of parents, the rational school treatment will undoubtedly accomplish the desired result.

The special treatment of the adult stammerer is of course beyond public control, except for declining to listen to him when he stammers. The impression that such treatment is heartless is only one of the many mistaken popular impressions—one of that big class that permits a fellow being to go on to harm for fear of hurting his feelings by pointing out his danger. The public should kindly but firmly tell the stammerer that, in his interest and the public interest, it must decline to listen if he persists in his distressing misdirected efforts; but it will give him plenty of time to express himself otherwise.

How can the confirmed stammerers be made fit for military duty? Most of those not in actual military service will probably find the affliction less of a burden in war times than otherwise, and there seems to be no way of making them recover promptly. The others who want to recover in order to serve, and the slight stammerers in the service who do not want to run the risk of disqualification in the excitement of service, must seek assistance. There are ways of greatly increasing the rate of spontaneous talking, but that must be done with skill or the result will be injurious instead of beneficial.

But is there no way of quickly making these stammerers fit for service? If by quickly is meant a month's time, no. The world has inexcusably let countless millions grow up in stammering and carry it to the grave while the real remedy has been neglected in searching for the chimerical quick one. Do we decline to build a battleship because it takes a few months of patient labor? Certainly not. Then why longer neglect the certain remedy for stammering?

Public Health Notes.

Returning Soldiers and Disease.—"Many returning soldiers will bring with them communicable diseases contracted at the front, the most serious of which will be syphilis, gonorrhea and tuberculosis, and these men will become centres for the spread of infection among our population. Already between 100 and 200 men have been returned to the Toronto district with tuberculosis, and the hospital doctors indicate that the number of cases of syphilis is large. Anyone familiar with the many forms that these diseases take, will understand the effect that they are likely to produce upon the registered death-rates from many other diseases. Most serious problems of preventive medicine will arise from these diseases."

This statement appears in the *Toronto Health Bulletin* for January, 1917.

The author of the article also points out the tremendous importance of preventive medicine on the battlefield.

"In the South African War and the Spanish-American War, three or four died from disease for every one dying from the enemies bullets. In the present war, the opposite is the case. In fact, so far as the Canadian Expeditionary Forces are concerned, typhoid fever, which claimed such an enormous toll in South Africa, is almost negligible."

*

Typhoid Spread by Toilet.—The *Weekly Bulletin* of New York City for June 16, 1917, tells of an interesting house epidemic of typhoid due to an insanitary toilet. Seven persons were infected, belonging to two families.

"An investigation of the premises undertaken in an effort to determine why such an unusually large percentage of exposed individuals should acquire the disease revealed the presence of a toilet, common to all the members of the entire house, situated in the cellar, kept in not a most sanitary manner, with improper flushing, and from appearances very infrequent washing. The spilling into and over this toilet of typhoid stools which had not been disinfected, the disease not being definitely diagnosed until six days after the onset, and the daily contact of all members of the house with this source of contamination, undoubtedly explains the unusual feature of this house epidemic.

"This outbreak also emphasizes the importance of immunization against typhoid fever and shows the necessity of active coöperation between the attending physician and the health authorities."

*

Health Department Teaches Dietetics.—The high cost of living has prompted the New York City Health Department to give practical demonstrations in cooking and dietetics to mothers at Baby Health Stations.

Public Health Nurses are being instructed in the proper purchase, preservation and preparation of food, with special reference to family income, racial characteristics and nutritional content of foods. The nurses will, in turn, instruct mothers at the sixty-three health stations.

*

Emergency Disinfection of Water Supplies.—*The Illinois Health News* announces that the State Department of Health now has available an emergency outfit for disinfecting public water supplies. Upon the outbreak of a typhoid epidemic suspected to be due to a public water supply, health officers may telegraph the State Department, and the apparatus and an expert to operate the same will be sent out at once.

The type of disinfection is not given; presumably it consists of chlorination.

*

Wound Diphtheria.—Recent numbers of the *Weekly Bulletin* of the New York City Department of Health and of the *Buffalo Sanitary Bulletin* report the finding of the diphtheria bacillus in smears from wounds. "Wound diphtheria," says the New York *Bulletin*, "is uncommon, but its occurrence should be kept in mind, since the toxic effects of the disease upon the individual are frequently as severe as when the infection is on the tonsil."

Framingham's Baby Week.—A very successful Baby Week was held in Framingham, Mass., from May 29 to June 2, conducted under the auspices of the Board of Health with the coöperation of the Civil League, the Community Health Station, the Woman's Club, the Woman's Auxiliary of the Board of Trade and other organizations interested in infant welfare. The ministers in town coöperated by giving appropriate talks from the pulpit on Sunday morning.

A total of 149 babies were examined and any found needing medical attention, if their parents are unable to furnish it, will be given treatment by the Board of Health. Weekly clinics will be held during the year with salaried physicians and nurses in attendance.

The merchants coöperated by displaying articles of interest to parents. Appropriate films were shown at the moving picture houses and a talk was given in connection with these by

Visits were made to the homes of all babies under one year of age, by nurses, inviting the mothers to bring their babies to the conferences and clinics held every day during the week in different sections of the town. These examinations were conducted by Doctor Bradley, of the Children's Bureau, Washington, D. C., Dr. H. Green from the Out-Patient Department of the Massachusetts General Hospital, Boston, Dr. A. B. Emmons, 2d, of Boston, and other children specialists.

Professor Selskar Gunn from the Health Department of the Massachusetts Institute of Technology.

An interesting exhibit was held in a vacant store at which inexpensive articles of wearing apparel, home-made refrigerators, sterilizers, and other articles for the care of the baby and its food were on exhibition, together with numerous posters suggesting methods for baby's care. A corps of efficient women were in attendance in the afternoon and evening to instruct the moth-

ers in the use of the different articles displayed. One of the most interesting as well as novel features of Baby Week was the Clean Milk Demonstration arranged by Health Officer Fred S. Dodson, a picture of which is shown herewith. Two cows were secured from local dairies, one from a dairy kept in a very sanitary manner and the other from a dairy which was very insanitary. Daily demonstrations of milking were given accompanied by talks describing the various steps in the operation and the significance of each.

A public exhibition of bacteriological examinations of milk was given in the window of a local drug store. By this demonstration it was hoped to educate the public to the extra necessary expense to raise clean milk and the value of the same, as well as to teach them what a bacteriological count means, so that they will be able to interpret the monthly publications intelligently.

⚜

Relative Values in Publicity.—In the article referred to on p. 636 Foster evaluates the various types of publicity on the sex hygiene question according to the composite judgment of twelve men in close touch with the work. "The average of their estimates is a safer guide for future work than any individual opinion. The averages should be read in this way: One letter of inquiry answered by the advisory department is worth ten times as much as one circular given out at the close of a meeting."

A few of the "values" are given herewith:

Distribution of one circular after a meeting	1
Attendance of one man at a men's meeting	5.2
Attendance of one parent at a parents' meeting	7.3
Attendance of one pubescent boy at a boys' meeting	8.3
Inquiry answered by Advisory Dept.	10
Placing of one barber-shop book (5 circulars bound)	11.8
Attendance of a teacher at a conference	11.9
Removal of one sex medicine sign	13.3
One visit at a home by an employed worker	14.8
One call at the Advisory Department	17.4
The placing of a State Board of Health placard	26.7

Health Reorganization in Connecticut.—The *Monthly Bulletin* of the Connecticut State Board of Health for May, 1917, prints in full an act of the state legislature, which abolishes the State Board of Health and creates a State Department of Health with increased powers and additional duties.

The new organization resembles somewhat that of New York State and Maine. A Public Health Council is created which has the power to establish and amend from time to time a sanitary code, and to prescribe the qualifications of directors of bureaus. It is an unpaid body, except for actual and necessary expenses relating to duties.

The Commissioner of Health is the administrative head of the department, and is paid $4,000 per year.

District health officers are not included in the plan, but cities and towns are empowered to consolidate for the purpose of establishing sanitary districts.

⚜

T. B. in Australia.—Louis I. Dublin writing in the *Journal of The Outdoor Life* for June, 1917, corrects a widespread belief that tuberculosis has virtually disappeared from the State of Victoria, in the commonwealth of Australia.

After delivering a few caustic remarks regarding "the amateur in vital statistics and public health work who has been guilty of such wild statements," Doctor Dublin points out the serious consequences of the latter: "When the press is disillusioned, it is all the more likely to discredit the future reports and programmes of competent public health workers."

Reviewing an official report on the subject, he quotes statistics indicating that the tuberculosis death-rate is still high, namely, 86 per 100,000 population in 1914. This rate is no lower than that prevailing in certain sections of the United States Registration Area, Utah, Kansas and Michigan, for example.

⚜

Occupation and Mental Hygiene.—Elnora E. Thomson, Superintendent of the Illinois Society for Mental Hygiene finds endless possibilities in finding congenial occupations for those handicapped mentally. She says that frequently patients examined for their sanity by physicians,

alienists, and neurologists are returned by statements such as the following: "This patient is not a subject for commitment nor is institutional care of any kind indicated. Patient would doubtless be greatly benefitted by congenial employment in a good environment."

A case is cited of a woman 70 years old thought by neighbors to be insane, who was made self-supporting by supplying her with needlework.

"It is contrary to modern ideas of economics to countenance waste. The establishment of schools and workshops for the handicapped, in hospitals and out, will make useful and happy many who otherwise would be a burden to their friends, the state or themselves."

The article appears in *Modern Hospital* for June, 1917.

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Cancer Mortality among Wage Earners Decreasing (Insurance Company Issues Cancer Statistics on 9,000,000 Policyholders).—The larger life insurance companies are closely observing their mortality experience from cancer. This they have done because of the great public interest in this disease and more especially because the figures published by the United States Census Bureau have indicated an increase in the cancer mortality rate. The results of an investigation of cancer mortality of insured wage earners show, however, that in 1916 an actual decrease in the rate occurred. In the Metropolitan Life Insurance Company, Industrial Department, 6,389 deaths from cancer were registered in 1916 and the rate per hundred thousand living was 70.8. In the year 1915 the rate was 72.1 which represents a fall of nearly two per cent. in the rate in one year. The decrease in the rate in 1916 over 1915 was greater than that registered for any previous year.

It is of great interest to observe that the cancer death-rate when considered by organ or part affected does not show the same rate of decrease as that referred to above. The rate for cancer of the stomach and liver increased slightly. On the other hand, the more accessible forms of cancer, such as those affecting the peritoneum, intestines and rectum showed a slight decrease and cancers of the female genital organs, which are quite accessible and readily diagnosed, showed a very marked decrease, from 14.3 to 13.0 per hundred thousand. Cancer of the breast, also an accessible form of the disease, showed a decrease in the mortality rate between the two years studied. Taken altogether, the record for 1916 is decidedly encouraging. The following table shows the rates for the two years 1915 and 1916 respectively, by organ or part affected:

TENDENCY OF CANCER MORTALITY AMONG NINE MILLION WHITE INDUSTRIAL INSURANCE POLICY-HOLDERS

Form of Cancer.	1916.		1915.		
	Deaths.	Rate per 100,-100.	Deaths.	Rate per 100,-100.	Per-cent. decline in 1916.
Cancer—all forms	6,389	70.8	6,129	72.1	1.8
Cancer of the stomach and liver	2,505	27.8	2,307	27.1	2.6*
Cancer of the peritoneum, intestines, rectum	804	8.9	773	9.1	2.2
Cancer of the female genital organs	1,177	13.0	1,212	14.3	9.1
Cancer of the breast	587	6.5	587	6.9	5.8
All other cancers	1,316	14.6	1,250	14.7	.7

* Increase.

The cancer rate among white lives (70.8 per 100,000) was higher than among colored lives (61.8 per 100,000).

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Mental Hygiene Committee.—The National Committee for Mental Hygiene has created a subcommittee on furnishing hospital units for nervous and mental disorders to the United States Government, the project having been approved by Surgeon General W. C. Gorgas of the United States Army.

This subcommittee, of which Dr. Pearce Bailey of New York is chairman, is authorized to secure the services of alienists and neurologists to be commissioned in the Officers' Reserve Corps, Medical Section, and to serve in the neuro-psychiatric units which are to be attached to the base and other hospitals of the military services of the United States. Further information will be given, and application forms sent to physicians qualified in this branch of medicine, on application by letter or in person to The National Committee for Mental Hygiene, 50 Union Square, New York City.

Health Examinations at School Entrance.—The progress that has been made of recent years in the way of health inspection of school children and students is reviewed by W. H. Burnham, Worcester, Mass. (*Journal A. M. A.*, March 24, 1917), who discusses Dr. Thiele's biologic study of school beginners. Thiele sent a questionnaire to the parents of 5,538 children of the public schools in Chemnitz, Germany, in an endeavor to determine the influence of family hereditary disease on children entering school at different ages, and Burnham gives a brief summary of the findings of Thiele and others in this regard. He thinks we should go farther than the German physicians, and that there should be a physical examination participated in by teachers and parents as well as the school physician, including (1) a test of physiologic age; (2) a test of psychologic age; (3) a test of the general health conditions, and (4) a history of the morbidity of the individual child. Importance of each of these tests is dilated on. The morbidity test should include not only the sicknesses past and present, but careful noting of bad habits. The entrance on school life, Burnham says, presents an opportunity for hygiene which has been strangely neglected. There is a feeling with many, however, that we have no right to go further than to keep out contagion, and see that diseases are prevented by vaccination methods, etc. The hygienic needs, however, go much further than this, and it is frequently necessary for the school to take up functions which do not naturally belong to it on account of the ignorance and poverty in many of the homes where hygienic conditions are bad. In his summary, Burnham says: "The reasons for a thoroughgoing health examination like that described above are obvious. Such an examination is desirable: 1. To prevent those children who are in ill health or not sufficiently developed physically and mentally from entering. 2. To provide the necessary physical data to enable teachers so to order the school work that it will not result in injury to health or a check to development, as often happens in the first year of school life. 3. That proper grading and adaptation of school occupations to individual capacity may begin at the outset of school life. 4. To give school physicians the data necessary for safeguarding the health of children against contagious diseases and the like. 5. To give teachers proper knowledge of the new pupils and the right attitude toward them. 6. That children may begin right and be saved from unnecessary failure and retardation or elimination in later grades. 7. To educate parents and foster a right attitude toward the school. 8. To save the money of tax payers, now largely wasted, and so badly needed to provide for absolutely essential hygienic conditions. Children who should be excluded from the school are:

1. Those who have any infectious disease. 2. Children that have rickets, or the after-effects of rickets to the extent that they are in poor physical health and liable to develop neuroses or some other defect from the influence of school work. 3. All children who have tuberculosis, unless there are outdoor schools in which they can be placed. 4. Children who are in a serious condition of anemia, unless again there are outdoor schools in which they can be placed. 5. Those who have any chronic disease which is liable to be aggravated by school attendance or would interfere with school work. 6. Those who are in a retarded stage of physiologic development or mental development, where this would be improved probably by keeping them out of school; and where injury would be done by admission to school, or where it would interfere with school work. 7. Those who have serious sense defects. 8. Those who have any neuroses or the like which would be psychically contagious, epilepsy, chorea, stuttering, and the like. 9. Children who have not been vaccinated." Burnham considers the entrance examination suggestion as giving an opportunity for women's clubs, parent-teachers' associations and similar organizations to use their efforts to bring about public sentiment that will authorize its adoption as quickly as possible. If the plan were given a fair trial in one city or state, he is confident that it would soon become universal. It would help greatly in the diagnosis of doubtful cases, lighten teachers' burdens, develop right attitudes in parents and save later sorrows. In some cases it would prevent greater mental disorders, and in any case is only reasonable justice for the child.

The Practising Physician and the Public Health.—*The Boston Medical and Surgical Journal* for June 14, 1917, contains a recent address on this subject given by Dr. Merrill E. Champion, a district health officer in Massachusetts.

Doctor Champion says:

"The family physician should be the strongest ally which the board of health has. He should work hand in hand with the board, should see that the best representatives of the profession get on the board of health, and that they get adequate compensation for this work. He should work for the appointment of trained, full-time health officers in the cities and towns; he should work for the employment of public health nurses; for an adequate water supply, sewer system, and milk inspection. He should realize that his greatest function is to be the adviser of his families in *all* things which pertain to their physical and mental welfare. He should learn to think in terms of community as well as in terms of family."

Danger from Old Potatoes.—*The Nurse* for May, 1917, contains a timely editorial on the danger of solanine poisoning from eating old potatoes. Owing to the high cost of this important article of food, more old potatoes will be used this year than heretofore.

"The potato belongs to the same botanical family as belladonna, stramonium, hyoscyamus, and tobacco—which are all powerful narcotics. The potato contains its share of poison in the form of an alkaloid called 'solanine.' While the potato is sprouting, the amount of solanine is considerably increased and may be sufficient to cause serious poisoning.

"Before sprouting potatoes are cooked for food they should be thoroughly peeled and the "eyes" dug out deeply. This greatly reduces the danger of poisoning although it does not insure its entire removal. There is a reason for eating new potatoes."

Laboratory Infection with Typhoid.—The one incontrovertible proof that a given bacterium is the cause of a specific human disease is furnished by the production of that disease in man through infection with pure cultures of the organisms. Not infrequently such evidence has been obtained by investigators through inoculation of themselves or of volunteers; occasionally some progressive murderer has conducted an accurate and convincing experiment, an account of which has subsequently been published not entirely with his approval or under his authorship; and accidental infections in laboratories have furnished conclusive proof far more often than is perhaps generally realized. Of all pathogenic bacteria, the one in worst repute in laboratories is the glanders bacillus, and probably it deserves this reputation. There are many instances, both reported and unreported, of laboratory infection with pure cultures of Bacillus mallei, and with these infections the mortality is extremely high. There is one striking instance of infection of several workers in a laboratory in which cultures of glanders bacilli were centrifugated in a broken tube, spraying the bacilli freely in the air. While typhus is notorious for infecting physicians and investigators, these infections take place through natural methods and not with pure cultures, so that they add little to our knowledge of the disease. Plague bacilli have infected numerous laboratory workers, and so have cholera vibrios. Macfadyen and two of his assistants became infected with the bacillus of Malta fever during experiments with this organism, the disease ending fatally in the chief.

Perhaps on account of its widespread use in laboratories, the typhoid bacillus has been especially prominent as a cause of laboratory infections; but fortunately the mortality rate is so much lower than with most of these other diseases that it has probably not caused many fatalities. These infections have had also a certain scientific value, since typical typhoid fever cannot be produced in laboratory animals, and hence each carefully observed case of laboratory infection consitutes an accurate experiment. If we are correctly informed, the first person to demonstrate conclusively the specific etiology of typhoid fever was a serving woman in the Pasteur Institute who, for some reason tired of life, took advantage of the means at hand and swallowed a culture of typhoid bacilli. She did not die, and hence failed to accomplish both her own purpose and the final anatomic demonstration of the experiment; but she did pass through a typical course of typhoid fever. Since that time accidental and intentional infections with typhoid bacilli have been reported frequently.—*Journal American Medical Association*, March 25.

Public Health Clippings.

Sanitary Crimes.—The United States Public Service suggests the following ways of making oneself ridiculously inconsistent: Repeat the golden rule and then sneeze in somebody's face; or, think that dog muzzling is cruel, and then marvel at the spread of rabies; or carefully select your brand of liquor and then feed your children unpasteurized milk; or go camping out for your health and then place your toilet so that it drains into your water supply.—*Kansas State Board of Health Bulletin.*

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The Leprosarium Bill.—President Wilson has signed the bill establishing a national leprosarium under the United States Public Health Service, and appropriating $250,000 for the purpose. Health officers and boards of supervisors, to say nothing of the lepers, will be glad to learn that the known lepers of the United States will soon be gathered into a colony where they will be under scientific treatment and where there can be an approach to normal companionship and community life.—*Monthly Bulletin*, California State Board of Health.

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Wrapping Garbage.—All garbage should be wrapped in newspapers after each meal and deposited like cordwood sticks in your garbage can. Flies cannot get at it, and smells are prevented. Flies are a real source of danger. One of these which has been crawling on garbage or offal or manure may subsequently crawl over baby's milk bottle nipple and deposit millions of filth germs upon it, capable of producing severe illness in the baby. If you have not a baby some of your neighbors have.—*Toronto Health Bulletin.*

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Amen!—One-half of the fools think they can beat the doctor healing the sick; one-third think they can beat the lawyer at his game; one-fourth believe that they have it all over the preacher; and all of them think they know how to run the health department.—*Buffalo Sanitary Bulletin.*

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Constable and Nuisances.—Not only are the police in California cities being used as allies in the enforcement of regulations pertaining to the public health, but in the rural districts of Los Angeles County each constable has been made an inspector for the county health office.—*Monthly Bulletin*, California State Board of Health.

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Early Diagnosis.—It has been found in New York City that eight per cent. of pushcart peddlers are syphilitic. It is but rarely that an early case of tuberculosis, in its curable state, is discovered among the colored population. These people take almost no precautions and medical advice is not obtained until they are unable to work. Early discovery of cases of tuberculosis and of syphilis is perhaps one of the most essential needs in the control of these two diseases, the social diseases, that bring such havoc to modern civilization. The greater the opportunities that are offered for discovering cases of these diseases early, the greater the results in the conservation of the public health. —California State Board of Health, *Bulletin*, March, 1917.

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Curbstone Medical and Health Advice from salt-barrel philosophers and town gossips is usually worth just a little less than it costs.—*Illinois Health News.*

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The State of Virginia is conducting a unique rural campaign of health publicity. Recognizing that millions of dollars have been drawn from the pockets of the country people through glaring signs tacked on the trees and fences along the highways, the Virginia State Board of Health is sending men throughout the state tacking up tin lithographs of black and orange setting health truths in most attractive style. One of the placards reads as follows:

"The Best Farm in this county is the one on which the health of the family is best protected.

"It has a good well.

"It has a sanitary privy.

"It has screens on the windows and doors to keep out flies and mosquitoes.

"It has no standing water in which mosquitoes can breed.

"Make it yours."—*Illinois Health News.*

The Old Farmer's Household Remedies.—Selected from "An Easy and natural Method of Curing most Diseases, extracted from some of the best Authors," in Bickerstaff's Boston Almanac for 1769.

This selection is reprinted from the *Atlantic Monthly Almanac* for 1916.

The Apoplexy. To prevent, use the cold bath, and drink only water.

The Asthma. Take a pint of cold water every night, as you lie down in bed.

To Cure Baldness. Rub the part morning and evening, with onions, till it is red; and rub it afterwards with honey.

Boils. Apply a little venice turpentine.

Chilblains. Apply salt and onions pounded together.

Chin-cough or Hooping-cough. Rub the feet thoroughly with hogs-lard, before the fire, at going to bed, and keep the child warm therein.

A Cold. Drink a pint of cold water, lying down in bed.

A Cold in The Head. Pare very thin the yellow rind of an orange. Roll it up inside out, and thrust a roll into each nostril.

A Consumption. A beginning consumption was cured by drinking decoction of guaiacum morning and evening for fifteen days (without sweating) with a light diet. Cold bathing has cured many deep consumptions. Or live on raisins and bread, and drink only decoction of barley and liquorice.

A Consumptive Cough. To stop it for a time, at lying down, keep a little stick liquorice shaved like horse-radish, between the cheek and the gums. I believe this never fails.

An Inveterate Cough. Use the cold bath. It seldom fails.

The Cramps (to prevent). Tie your garter smooth and tight under your knee, at going to bed.

The Cramps (to cure). Stretch out the limb immediately.

Drowned. Rub the trunk of the body all over with salt. It frequently recovers them that seem dead.

Dull Sight. Drop in two or three drops of juice of rotton apples often.

A Chronical Head-Ach. Keep your feet in warm water, a quarter of an hour before you go to bed, for two or three weeks.

The Rheumatism. Use the cold bath, with rubbing and sweating.

The Head-ach. To be electrified.

A Sore Throat. Take a pint of cold water lying down in bed.

A Sprain. Hold the part in very cold water for two hours.

A Stitch in The Side. Apply treacle spread on a hot toast.

To Clean The Teeth. Rub them with ashes of burnt bread.

To Prevent The Tooth-ach. Wash the mouth with cold water every morning.

To Cure The Tooth-ach. Be electrified thro' the tooth. Or, keep the feet in warm water, and rub them well with bran, just before bedtime.

Inability to Sleep. Apply to the forehead for two hours, cloths four times doubled and dipt in cold water. I have known this applied to a lying-in woman, and her life saved.

Whooping Cough. A gentleman who has tried it says that yellow pond-lily root, dried and pulverized, mixed with an equal quantity of honey, and taken a spoonful at a time, several times a day, will not only relieve the whooping cough, but will cure it in a short time.

Generally where Cold-bathing is necessary to cure any disease, Water-drinking is so, to prevent a relapse.

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Fumigation.—"In such diseases as scarlet fever and poliomyelitis the concurrent disinfection of discharges from the nose and throat should be carefully done; in typhoid fever, disinfection of the urine and feces. Fumigation in these diseases doesn't amount to a tinker's dam.

"When a man knows that a disease is transmitted in a certain way and neglects to block that way, salving his conscience by doing a little fumigating, I don't know of anything that would come nearer to establishing his eligibility for residence in a home for the feeble-minded."—Dr. S. H. Landis in *The Ohio Public Health Journal.*

*

West Virginia has joined the ranks of those states that now have a state-wide Public Health Day. The governor, John J. Cornwell, designated April 16 for 1917.

Unreported Babies.—When all these persons grow to adult life and require their birth record—as most of them surely will—they will blame everybody except those directly responsible, namely, the parents, physicians or midwives—but that will not rectify the omissions or help out the individuals.—*Buffalo Sanitary Bulletin.*

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Disease Spreaders.—"Ten ways spreading diseases are by the ten fingers. Keep the mouth and teeth clean and the hands away from the mouth. Vaccinate for whooping-cough. The rash and scales in scarlet fever have nothing to do with infection the throat is where the contagion lies. In diphtheria, the antitoxin has no effect on germs or membrane, but prevents the deadly effect on the heart. Fingers in the mouth are responsible for much of typhoid fever." (Goler) — *Monthly Bulletin* (New Haven).

Exposure and Pneumonia.—Though pneumonia is commonly believed to be due to exposure to cold or wet, it has very little to do with these. You will not catch pneumonia after breaking through ice or getting lost in the snow, unless you already have the germs of the disease in your mouth and throat and your constitution has already been run down by bad air, underfeeding, overwork or dissipation. Arctic explorers, for instance, never catch pneumonia in the frozen North.—*Public Health* (Michigan).

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Do Not Enlist Now.—Health officers, sanitary engineers and all health workers should not enlist until they can be assigned to best advantage—your services are many times more valuable to your country in your chosen profession than in the army or navy as a soldier or sailor.—*Monthly Bulletin* (Connecticut).

Industrial Hygiene and Sanitation.

Medals for Safety.—Details of some of the safety devices for which the American Museum of Safety granted medals are available in the May number of *Safety*. The *Scientific American* Medal was awarded to the Pullman Company of Chicago for the invention of the "Dean End Frame" by the company's vice-president, Mr. Richard Dean. The invention consists in a modification of the construction of the cars so as to reduce to a minimum the damage done to the cars and consequently to afford greater safety to passengers. The Travelers Insurance Company's Medal went to the Commonwealth Steel Company of St. Louis, because of the conspicuous success which has attended the company's organized work for the reduction of accidents and the promotion of operative details. The Leaman Gold Medal was awarded to the Julius King Optical Company of New York for scientific research in overcoming the harmful effects of ultra-violet and infra-red rays of light in connection with arc-welding and other industrial processes at very high temperatures. All of the researches conducted in what was practically an unknown field. The helmets adopted are made of fiber, finished within and without in dead black so as to minimize the danger from reflected light.

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Report on Compensation.—A "Summary of Report on Workmen's Compensation Acts in the United States" with reference to the legal phase of the problem was published by the National Industrial Conference Board, 15 Beacon Street, Boston, Mass. The pamphlet covers the pertaining facts in a concised manner.

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Oven Explosions.—The May number of *Safety Engineering* states that the Ford Motor Company has had a number of serious explosions in their enameling ovens throughout the country. Experiments proved that the explosions would not injure the oven if the top of the oven were not fastened down securely. All Ford enameling plants are now changed so that in case of explosions, the tops will lift and dissipate the force of the explosion without damage to the ovens.

The following is a summary of important articles which appeared in the June issue of the *Monthly Review* of the United States Bureau of Labor Statistics. Many of these articles deal with the changes brought about by the present war in the industrial fabric of the allied countries. The director-general of national service in Great Britain has taken steps to obtain a pool of male labor for the purpose of releasing men engaged in industrial work of national importance for army service and reinforcing the present staffs at certain very important works. Two lists of trades have been prepared, one of which enumerates occupations of primary importance. Both lists appear in detail.

The British Board of Trade *Labor Gazette* (April, 1917) cites two instances in which it was shown that the shortening of hours brought about a marked increase in production. These two instances are those of a shoe manufacturer employing over 4,000 men in seven factories and of a tool manufacturer employing about 500 men. The tool manufacturers reduced the hours of labor by about nine per cent. and secured an increase in production of ten per cent.

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Reëducation of Disabled Soldiers.—What France is doing for her disabled soldiers and sailors is very interestingly discussed by Percy Alden, M. P., in the January number of the British Institute of Social Service. A large number of experiments are being made with regard to medical treatment, and especially with regard to the training and reëducation of men, who otherwise could be entirely dependent upon their pensions. A new body was created in France to deal exclusively with this problem. The problem was studied with great care. There are over 101 existing or proposed institutions for reëducation in various departments, and in addition there are four schools founded and supported by the union of foreign colonies in France. The system of reëducation and the pension system is given in considerable detail. The article is concluded with a series of suggestions regarding the treatment of disabled soldiers in the United Kingdom. The Canadian Military Hospitals Commission Bulletin, Nos. 1, 2 and 3 deals with the same problem pertaining to the Dominion. Pages 915–949 of the *Monthly Review* dealing with the government control of food supplies in France, Germany and Great Britain throw a glaring light upon the present food situation in these three countries. To what extent the war has affected the price of food in United States and a number of foreign countries is evident from a study of pages 952–972.

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The United States Department of Labor has organized the United States Boys' Working Reserve for the purpose of meeting the labor shortage in certain industries, notably farming. There are within the United States over four and one-half million of boys between the age of 16 and 21 years, more than two million of which are not engaged in any productive industry. The first call for the services of the Boys' Working Reserve came from the canning industry.

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The New York Office and testing station of the Underwriters' Laboratories is now located at 25 City Hall Place.

Communications.

To the Editor:

The accompanying statements are quotations from the final examination papers of a class in "Hygiene" in a Class A medical school:—

"Rabies is transmitted by the sylvia of a dog or cow."

"People may be poisoned by the sodamint in potatoes." (This reference was presumably to solanin.)

Speaking of food and its effect upon health: "The national law would cover everything that would come up."

"Avoid inhalation of dust by wearing aspirators."

"Disinfect hands by ———, lots of enthusiasm and elbow grease ten minutes."

"Pasteurized milk causes constipation and is not suited for children. It cost more than inspected. If can afford it it is best."

"The advantage of the pasteurization is that it cost more and it is very healthy to public."

"Adulteration of food these substances or meterials are much in the way and causes much to the neihborhood or public."

To disinfect woodwork in a room: "Best to burn up," and from another "Scrub with boiling water."

"Malaria is transmitted by the Anapolis mosquito."

"Malaria is caused by the Spasmodium of malaria."

"To prevent lead poisoning among painters: Where masks, drinking sulphides."

"Goldfish prove good destroyers of the lava of mosquitos."

"A cattle of boiling water."

While they are given primarily for the amusement of the reader they ought also to prove a subject for serious consideration. Perhaps the first conclusion to be drawn is that the plan of lecturing to a large class without an opportunity to reinforce the instruction by quizzing is not a satisfactory one. This is especially true where the usual custom of not returning the final examination papers is in force. The student has no opportunity to observe his mistakes or to correct erroneous impressions and with the prestige of an M. D. goes out to retail his misinformation to the public. This fault does not lie with the professor who has to crowd so large a subject into fifteen or thirty lectures. It is not desirable to take the time of a class of from 50 to 150 students for oral quizzing and so far as is known no medical school uses the plan of dividing the class into small quiz sections. That the other courses have the same defect is shown by the fact that the above answers include misstatements in physiology, zoölogy, materia medica, and bacteriology;—not to mention spelling and common sense. Fortunately for the reader the writing cannot be reproduced but in many cases it lends weight to the statement that in medical school students are taught to write prescriptions illegibly.

To those who believe that the degree of Doctor of Medicine is not an essential requirement for a health officer these answers may prove impressive. A general practitioner in a small town recently said that the two courses most neglected and ridiculed when he was in medical school were hygiene and dietetics and these were the two courses for which he had found most frequent need since he had been in practice.

The writer believes that it is desirable that a health officer should be a graduate of a medical school if possible, but he is far from believing that the "M. D." means that a man knows anything about sanitation and public health or that the law which merely requires that the health officer must be a graduate of an accredited medical school is worth while.

LECTURER ON HYGIENE.

Personal Notes.

Dr. Wm. H. Coon has been appointed Director of the Health Department of Kansas City, Missouri. Doctor Coon was a District Health Officer of the State Department of Health of Massachusetts for many years and has recently been employed by the Harvard Infantile Paralysis Commission. It is planned that a complete reorganization of the Kansas City Health Department will be carried out by Doctor Coon.

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A commission of sanitary, social, medical and food distribution experts has been appointed to proceed at once to Russia under the auspices of the Red Cross to make a survey of the social needs of the people, particularly as to sanitary and health problems. This commission is headed by Dr. Frank Billings, Chicago. Dr. William S. Thayer, professor of clinical medicine in Baltimore, and Dr. Wilber E. Post, assistant professor of medicine at Rush Medical College, will investigate the general medical problems which may arise. Dr. D. J. McCarthy, Philadelphia, will act as tuberculosis expert. Mr. Harold H. Swift of Swift and Company, Chicago, goes as the food expert of the commission, and Prof. Henry C. Sherman, professor of food chemistry, Columbia University, New York, will have charge of the scientific aspects of the food problem. Prof. George C. Whipple, professor of sanitary engineering, Harvard University; Prof. C.-E. A. Winslow, professor of public health at Yale University, and Dr. Malcolm Pirnie, assistant to Professor Winslow, will be concerned with the sanitary and hygienic problems. Mr. Raymond Robins, Chicago, will investigate sociologic questions, representing the social labor group. Dr. William Groh, Philadelphia, is medical attaché, and Dr. O. F. Whitman of New York will act as moving picture director. The business director of the commission will be William B. Thompson, banker of New York City. Among the remaining personnel are: Allen Wardwell, New York, secretary; James W. Andrews, New York, treasurer; H. F. Brown, New York, publicity; Henry J. Horne, New York, transportation; William C. Nicholson, Chicago, secretary to Mr. Swift; Thomas B. Thatcher, New York, secretary to Mr. Thompson; Robert I. Barr, New York, assistant to Mr. Thompson; William Cochran, New York, assistant to Mr. Horne; Cornelius Callaher, New York, stenographer to Mr. Thompson; Harry B. Redfield, New York, stenographer; Harold M. Wycoff, New York, motion picture operator; Lawrence C. Houghteling, Chicago, attaché. There will also be several attachés who are versed in the languages of the far east, as well as in Russian, French and German; valets, etc. The commission leaves Chicago, June 30, and a Pacific port during next week.—*Journal American Medical Association.*

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Dr. Bryon U. Richards of Pawtucket, R. I., has been elected Secretary of the State Board of Health of Rhode Island, succeeding in this position Dr. Gardner T. Swarts. Doctor Swarts served as Secretary of the Board for twenty-three years and during that time has been recognized as one of the most prominent public health workers in the United States. His legion of friends wish him every happiness, and know that, although no longer serving in an official capacity, his interest in public health work will remain unabated.

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Dr. Hiram Byrd of Princeton has accepted the appointment of Scientific Secretary to the Florida State Board of Health.

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Dr. W. H. Cox of Brooksville has accepted the appointment of State Health Officer of Florida.

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In the June JOURNAL we announced that Dr. Francis H. Slack had accepted the position of pathologist, bacteriologist, and serologist in the Sias Laboratory, Brooklyn, N. Y. We should have stated that this laboratory is located in Brookline, Mass.

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Dr. L. D. Bristol has been appointed Commissioner of Health of the State of Maine. Previously Doctor Bristol was offered the position of State Health Officer of Nebraska which he declined.

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Dr. Charles H. Holt, Superintendent of Health of Pawtucket, R. I. has left to join the Medical Reserve and Dr. J. H. Bennett has been appointed to succeed him.

Current Public Health Literature.

AMERICAN.

American Food Journal, Chicago.

VI. June.

A Legal Butter Color. Editorial.
Fraudulent "Egg Substitutes" and "Egg Savers." C. H. LaWall.
Purification of Water Supplies. H. E. Barnard.
Commercial Canning. A. W. Bitting and K. G. Bitting.
The High Quality of Canned Foods. L. V. Burton.

Boston Medical and Surgical Journal.

CLXXVI. June 14.

The Practicing Physician and the Public Health. M. E. Champion.

Interstate Medical Journal, Chicago.

XXIV. June.

Tuberculosis in Infancy and Childhood. John B. Hawes.
Some Aspects of Malaria in Children. W. H. Deaderick.
Institutional Treatment of Disease and Specialization. F. M. Pottenger.
Immunity from Hay Fever an Important Asset in National Mobilization. Wm. Scheppegrell.
The Modus Operandi of Epidemics.

Journal of the American Medical Association, Chicago.

LXVIII. June 2.

Epidemic Vincent's Angina Affecting Troops. A. R. Campbell and A. D. Bramshot.
Complement Fixation Tests in Tuberculosis: A Comparison of the Autolysate Antigen and Miller's Bacillary Antigen. H. J. Corper and H. C. Sweany.
One Road to the Control of Heart Disease. Henry Sewall.
Public Health Instruction in Medical Schools. M. J. Rosenau.

June 9.

A Water-Borne Epidemic of Typhoid Fever: Isolation of the Typhoid Bacillus from the Contaminated Supply. Geiger, Macmillan, and Gillespie.

June 16.

Tuberculosis and War. Maurice Fishberg.

June 23.

The Care of Cripples as a Problem for Each Individual State. E. W. Ryerson.
Three Years' Experience in the Search for Typhoid Carriers in Minnesota. Chesley, Burns, Greene, and Wade.
Hookworm Control in South China. Edward H. Hume.
A Typhoid Carrier Problem. H. F. Senfter.

Journal of Bacteriology, Baltimore.

II. May.

The Colorimetric Determination of Hydrogen Ion Concentration and Its Application in Bacteriology. III. Clark and Lubs.
The Use of a Three Per Cent. Lactose Litmus Agar Plate for the Demonstration of B. Coli in Water Examination. E. M. Meyer.
A Simple Method for Staining the Capsules of Bacteria. F. M. Huntoon.
The Fallacy of Refined Readings of Gas Percentages in the Fermentation of Lactose Peptone Bile and Lactose Broth. Browne and Ackman.
Note on the Reaction of the Paratyphoids, Alpha and Beta, in Litmus Milk. P. B. Hadley.
Study of the Diphtheroid Group of Organisms with Special Reference to Its Relation to the Streptococci II. Classification. R. R. Mellon.
The Fuchsin-Aldehyde Reaction on Endo Medium. G. G. De Bord

Journal of Laboratory and Clinical Medicine, St. Louis.

II. June.

Smallpox Vaccination at the University of California. J. N. Force.
Report on Prophylactic Vaccination with B. Typhosus, B. Paratyphosus A, and B. Paratyphosus B. W. C. Davison.
Significance of Lamblia Intestinalis in Stool Examinations. A. H. Logan and A. H. Sanford.
Studies of Complement: Relation to Certain Tests. N. E. Williamson.

Journal of Outdoor Life, New York.

XIV. June.

Climate and Tuberculosis. J. W. Trask.
Tuberculosis in Australia. Louis I. Dublin.

Medical Reviews of Reviews, New York.

XXIII. July.

Birth Control: Its General and Medical Aspects. A. L. Goldwater.
The Bat as an Eradicator of the Mosquito. S. A. Campbell.

Military Surgeon, Washington, D. C.

XL. June.

Collection and Evacuation of Sick and Wounded from Front to Base. T. H. Goodwin.
Diagnosis of Tuberculosis in the Military Service. G. E. Bushnell.
Sanitary Service of the Austro-Hungarian Army in Campaign. J. H. Ford.
Epidemiological Study of an Outbreak of Measles, Camp Wilson, San Antonio, Texas. E. L. Munson.
The Illinois Camp of Mobilization. Jacob Frank.
Effect of Submarine Duty on Personnel. W. W. Cress.
Technique of Anti-Typhoid Inoculations. J. H. Allen.

Modern Hospital, St. Louis.

VIII. June.

Occupation and Its Relation to Mental Hygiene. E. E. Thomson.
Symposium on Occupational Therapy.

New Orleans Medical and Surgical Journal.

69. June.

Camp Sanitation and the Training of Sanitary Troops. W. A. Love.

National Municipal Review, Philadelphia.

VI. May.

Recent Public Health Reports. A. W. Hedrich.
New Orleans' Increasing Political Health. E. E. Moise.

New York Medical Journal.

CV. May 26.

A Constructive Health Program for Urban Schools. I. H. Goldberger.
The Mental Hygiene Movement. Editorial.

June 2.

Systematized Boarding Out versus Institutional Care for Infants and Young Children. H. D. Chapin.
Analysis of a Series of Typhoid Fever Cases. S. Steiner and J. W. Brandeis.

June 9.

The Louse Problem. H. C. Hall.

June 23.

Constructive Suggestions Toward the Control of Tuberculosis in Times of Peace and in Times of War. S. A. Knopf.
Birth Control and the Physician. J. S. Greene.
Constructive Suggestions Toward the Control of Measles, Scarlet Fever, Diphtheria, and Whooping-Cough. S. J. Baker.

Public Health Journal, Toronto.

VIII. June.

Poliomyelitis. H. W. Hill.
Clinical Studies of Infantile Paralysis. E. J. Doucher.
Public Health in the Average Town: Ways and Means of Conducting. C. A. Patterson.
Practical Points in Enforcement of the Regulations and the Difficulties of the Medical Officer of Health. H. Ross.
How Could a Rural Municipality Employ a Public Health Nurse. J. F. Hanly.
Overcrowding—Why is it Tolerated? Thos. Watson.

Southern Medical Journal, Birmingham.

X. June.

Some Problems in the Etiology of Poliomyelitis. W. H. Frost.
The Tuberculosis of Infants. Mary E. Lapham.
The Work of the U. S. Public Health Service with Reference to Malaria. R. C. Derivaux.
Prophylaxis in Mental Disease. W. C. Sandy.

Survey, New York.

XXXVIII. June 9.

The Red Cross Commission to France.

June 23.

The History of Poliomyelitis in 1916.

June 30.

Industrial Poisons in Munition Plants. Gertrude Seymour.

U. S. Public Health Reports, Washington, D. C.

32. June 1.

Maintenance of Health in Industries. J. W. Schereschewsky.
Immunization against Typhus Fever. G. W. McCoy.

June 8.

Occupation and Mortality. S. W. Wynne and W. H. Guilfoy.

June 15.

Morbidity Statistics of Hospitals. E. W. Knopf.

June 22.

Public Health Administration in Piqua, Ohio. Carroll Fox.

BRITISH.

Journal of State Medicine, London

XXV. May.

Prevention and Arrest of Certain Epidemic Diseases in War Time. S. M. Copeman
Tuberculosis and War. James Crichton-Browne.
Tuberculosis Problem in War Time. T. D. Lister.

June.

Sterilization of Unsound Meat. W. J. Howarth.
Tuberculosis Problem in War Time. T. D. Lister.
Protection of the Milk Supply. W. G. Savage.
Remarks on Clean Milk Standards. Sheridan Delepine.
Congo Red Blood Serum: A Culture Medium for the Meningococcus. J. H. Johnson.

Medical Officer, London.

XVII. May 26.

Midwifery Service in the County of London.
The Proposed Sale of Sterilized Meat. Phillip Boobyer.

June 2.

Education and Physical Fitness in Relation to Employment.

June 9.

Remuneration for Infant Welfare Work.
Notes on the Collection and Disposal of House Refuse. C. H. Cooper.